Acceptance and Commitment Therapy for Chronic Pain: An Evaluation of the Self-Help Book, *Living Beyond Your Pain*

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Abstract

The current research was a randomised two group (control and treatment) study that evaluated the effectiveness of an ACT-based self-help book for people with chronic pain. Over a 6-week period, 6 participants read the book and completed exercises from it with weekly telephone support while 8 others waited. Five of these others began the intervention after a 6-week control period. Participants completed pre- and post-intervention questionnaires for acceptance, values illness, quality of life, satisfaction with life, depression, anxiety and pain. Initial outcome data were collected for 8 control participants and 6 intervention participants. A total of 11 participants completed pre- and post-intervention measures. Participants' who read the book, rated the content of the book each week according to reading level and usefulness, and their comprehension of the content was also assessed. Original group data showed statistically significant improvement in acceptance and quality of life for those who completed the intervention. Once the data were pooled, statistically significant improvements in acceptance, quality of life, satisfaction with life, and values illness were found. In general, using the self-help book did not result in reduced pain, depression or anxiety, although for some individuals gains were made in these areas. Individual perceptions of the book components were varied but findings suggest that cognitive defusion and mindfulness were parts of the book that participants found hard. The current findings support the hypothesis that using the self-help book would add value to the lives of people who experience chronic pain. Thus, the book may be a useful tool for people who experience chronic pain.

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Chronic pain is problematic for those who experience it and complicated for health professionals in terms of reducing or ameliorating it. Chronic pain often leads to disability and poor quality of life and is a costly social phenomenon. Psychological functioning and its relationship with experiences of pain, is a relatively recent area of inquiry (Gatchel, Peng, Peters, Fuchs & Turk, 2007). Fordyce (1994) reported that in industrialised countries approximately 30% of the population experience chronic pain.

Pain

Pain is a symptom that signals harm to the body, and can be altered by a person's experiences. Pain is a dynamic experience that involves perception and interpretation of stimuli which interact with physiological mechanisms (Main, Keefe & Rollman, 2002). Nociception is a process where stimulation of the nerves sends a message to the brain about potential tissue damage. Pain is the subjective experience of how the pain is perceived by the individual and is based on the integration of sensory information. This experience may be influenced by individual learning history, genetic composition, current psychological status and sociocultural influences. Gatchel and colleagues (2007) advise that when assessing and working with people with chronic pain, these factors need to be considered at an individual level. Because pain is a sensation that is unpleasant, pain consists of both sensory information and emotional experience (Gatchel et al., 2007). Suffering is described as emotional responses to nociception such as feelings of depression, anger or fear (Fordyce, 1994; Gatchel et al., 2007).

Pain is idiosyncratic in the sense that often, pain intensity does not match the level of tissue damage or related disability, and it varies for different individuals (Eccleston, 2001). Pain is categorised into acute pain and chronic pain. Acute pain is time limited and signals tissue harm or injury. The causes of acute pain are usually known whereas this is not always the case with chronic pain. Chronic pain is defined as pain that persists beyond normally expected healing time (Jensen & Karoly, 1991). Chronic pain is complex and largely misunderstood (Caudill, 2002). It can exist following an injury or when there is no well defined source or cause and it lasts longer than three months. Chronic pain umbrellas a variety of pain conditions which may implicate inflammation of tissue, muscle spasm and/or nerve irritability. The consequences of chronic pain are multiple, impacting on biological, psychological and sociological functioning (Caudill, 2002).

Individual responding to pain is referred to as pain behaviour (Fordyce, 1984). Fordyce (as cited in Turk & Fernandez, 1991) and Main, Keefe and Rollman (2002) put forward two main psychological perspectives to explain pain behaviour which are classical conditioning and operant conditioning. From a classical conditioning perspective, pain behaviour is an unconditioned response to a pain stimulus. Through such learning, responding may become conditioned so that responding replicates or is similar to the response when the injury took place (Turk & Fernandez, 1991). From this perspective, memories of pain and the fear of pain can reproduce pain (Main, Keefe & Rollman, 2002). Furthermore, physical problems may be secondary to behaviour changes in response to this kind of learning (Turk & Fernandez, 1991). As pain becomes chronic, an increasing number of circumstances may elicit anxiety and pain which can add to further

physical de-conditioning and maintain avoidance behaviour (Turk & Fernandez, 1991).

From an operant conditioning perspective, the persistence and frequency of pain behaviour can be explained by the consequences related to the pain behaviour (Baum, 2005). An operant account is utilised to explain behaviour as a process of interactions between an individual and their environment (Fordyce, 1993). Pain behaviours are operants because they are sensitive to the effects of learning based on the contingencies of reinforcement from the environment (Fordyce, 1982). In the case of acute pain a medical treatment perspective may be appropriate but once pain becomes chronic, a purely medical explanation may no longer be useful. Pain behaviour may persist beyond healing time for reasons different to those present at the time of injury (Fordyce, 1982). These reasons include the consequences of the pain behaviours. Positively perceived consequences such as attention from a spouse may increase the likelihood of pain behaviour. Negatively perceived consequences such as pain may reduce participation in a painful exercise program (Main, Keefe & Rollman, 2002). In cases of chronic pain, environmental contingencies may maintain pain behaviours and extinguish more adaptive behaviours (Fordyce, Fowler & Delateur, 1968). There are several theoretical models of chronic pain. The major models include; Medical, Gate Control Theory, Biopsychosocial and Fear-Avoidance. These will now be outlined.

Theoretical Models

Medical model of pain. Traditionally, pain was treated from a disease oriented perspective that assumed that pain is due to an underlying cause or pathology (Vlaeyen & Morley, 2005). From this perspective pain was considered

the direct result of physical factors that activate pain receptors due to tissue damage. Treatment approaches included localisation of the pathology, correction of the problem and reduction of symptoms were priorities (Fordyce, 1988; Vlaeyen & Morley, 2005). From this model narcotic painkillers are used to block the brains awareness of pain and treatment is at the tissue pathology level (Caudill, 2002). In comparison to a single medical account, more comprehensive explanations of chronic pain have been developed since the introduction of the Gate Control Theory of pain which will be summarised next.

Gate Control Theory of Pain. Gate Control Theory of pain was put forward by Melzack and Wall (1996) and constitutes of the idea that physical pain is not the direct result of the activation of pain receptor neurons. In contrast, the perception of physical pain is the product of an interaction between different neurons. Melzack and Wall (1996) argue that the brain directly controls the perception of pain and that pain stimuli can be ignored in order to pursue potential gains. In this way, the brain can be trained to *switched off* forms of pain that are not useful. Gate Control Theory has had a significant impact on the development of multi-disciplinary approaches to the treatment of pain. By linking the activity of nerves to the immune system and sensory and cognitive experiences, explanations for how pain control techniques work have been provided (Caudill, 2002). Thus, treatment is aimed at various components such as diet, drugs and lifestyle choices including friends, activities and work. These treatment components involve aiming to reduce the fear-avoidance pattern that often develops when people experience chronic pain (Vlaeyen & Linton, 2006). This model of pain related behaviour is discussed next.

Fear Avoidance Model of Pain Behaviour. The fear avoidance model

suggests that long term pain and disability is increased when individual perceptions of the likely impact of pain, lead to safety behaviours such as escape and avoidance (Vlaeyen & Linton, 2006). For example according to this model, if certain bodily movements are feared and avoided, problems such as increased pain arise due to the lack of movement in that area of the body (Lohnberg, 2007). Vlaeyen, Kole-Snidjers, Rotteveel and Renske (1995) have argued that when an individual responds to pain in a confrontational style that recovery from chronic pain is more likely. Furthermore, this model purports that some individuals are more likely than others to experience a catastrophising cognitive style which maintains the fear of pain and re-injury. Fordyce (1994) reported a study by Waddell and Bryn (1993) that provided evidence that fear of re-injury was the strongest predictor of duration of disability for people with lower back pain. Interventions such as CBT strategies and the ACT self-help book have been aimed to reduce pain related fears and maximise activity and adaptive functioning (Lohnberg, 2007).

Biopsychosocial Model of Pain. The development of Gate Control Theory has led to a greater understanding of pain behaviour and has also lead to biopsychosocial models of pain. These models are an attempt to better conceptualise the multidimensional development of dysfunction in relation to experiences of pain. Gatchel and colleagues (2007) state that from a biopsychosocial perspective, physical, psychological and social influences are integrated in the experience of pain. From this perspective, disease is defined as the objective biological event that takes place in the body. In contrast to this, illness is referred to as a complex mix of biological, psychological and social components including pain behaviour (Gatchel et al., 2007). According to Main,

Keefe and Rollman (2002) individual behaviour is the product of a person's interpretation and emotional response to pain which may be influenced by the social environment where the behaviour takes place. This responding to pain in the context of daily functioning, is often referred to as adjustment.

Adjustment

The concept of adjustment is idiosyncratic and multidimensional and is defined as adaptive mental functioning and the ability to carry out normal physical and psychosocial activities (Jensen & Karoly, 1991). Complex relationships exist between individual pain appraisals, coping strategies and adjustment to chronic pain. Identifying individual factors that promote adaptive functioning when living with pain is important (Jensen & Karoly, 1991; Jensen, Turner Romano & Karoly, 1991).

Gatchel et al. (2007) suggest that there are adjustment differences seen in people with chronic pain. Some people with chronic pain function adaptively and others do not. Chronic pain often leads to inactivity, emotional suffering, depression and disability, but this is not always so (Gatchel et al., 2007). Pain can be exacerbated by insomnia, depression, anxiety and the use of alcohol (Caudill, 2002). Various dimensions of adjustment considered relevant to chronic pain include: pain behaviour, self reported pain severity, activity level, physical strength and mobility, medication use, health services utilization, employment status and depression. Using factor analytic procedures Jensen and Karoly (1991) found that activity level, psychological functioning and medication/ professional services utilization are distinct but related components related to adjustment to chronic pain and quality of life.

Quality of Life

According to McAlinden and Oei (2006) quality of life is the subjective evaluation of the degree to which an individual considers their needs, goals and wishes are fulfilled. The perception of a discrepancy between the need/goal/wish and its manifestation is followed by an affective response that is positive or negative. Frisch, Cornell, Villanueva, and Retzlaff (1992) argue that quality of life is an essential part of mental health and that it is important in that it may affect a person's mental health even when specific symptoms have disappeared. Research consistently suggests that low subjective quality of life is a major symptom of anxiety and depressive disorders and the importance of examining it in a clinical context is emphasised (Mc Alinden & Oei, 2006). Psychological acceptance has gained recent support as playing a role in adjustment to chronic pain (McCracken & Eccleston, 2003), and will be outlined next.

Acceptance

McCracken and Eccleston (2003) state that acceptance can help reduce suffering and relieve behaviour problems across a range of problems. They (McCracken & Eccleston, 2003) describe acceptance as disengaging from a struggle with pain, being realistic about pain, and engaging in rewarding everyday activities. Acceptance differs from earlier psychological pain management approaches which emphasised coping as a means to live with chronic pain. McCracken and Eccleston (2003) argue that despite the use and benefits that have come from the concept of coping, the concept is confusing and does not provide a clear conceptualisation of the meaning of coping or of the coping strategies that need to be employed by people with chronic pain. Acceptance is helpful in terms of adjustment because it is utilised to promote people to live a satisfying life

despite pain. McCracken and Eccleston (2003) argue that acceptance has a recent but reliable record for mediating effective behaviour change efforts. Using regression analyses, McCracken and Eccleston (2003) demonstrated the effectiveness of acceptance strategies in comparison to coping strategies in the adjustment of people with chronic pain. Other contributors to individual adjustment and experiences of pain will now be outlined.

Contributors to Pain Experiences

The psychosocial contributors to pain consist of emotion and cognition (Gatchel et al., 2007). Emotional response is an immediate reaction to nicoception. In contrast, cognitions with attached meaning to the emotional experience of pain can trigger further emotional responses which perpetuate a cycle of pain, distress and disability (Gatchel et al., 2007). According to Fox and Ingram (1999) stress is also associated with increased likelihood of illness and chronic pain. Caudill (2002) has also reported that there is a significant relationship between stress and both the incidence and severity of chronic pain.

Jensen and Karoly (1991) describe beliefs as cognitions and attached meanings that people have regarding their pain problem. Beliefs about consequences of an event and the ability to cope are thought to directly influence mood and coping efforts (Jensen & Karoly, 1991). Lohnberg (2007) outlined the evidence for the understanding that fear avoidance beliefs contribute to the development, maintenance and worsening of pain related disability. Jensen et al. (1991) outline seven categories of beliefs as follows: general locus of control, control over pain, attributional style, cognitive errors, self efficacy, outcome expectancies and pain appraisals. Due to possible confounds they advise caution when interpreting measures of pain appraisal and coping.

Locus of control is defined by Jensen et al. (1991) as a cognitive style characterised by a generalized expectancy about the relationship between behaviour and the subsequent occurrence of reinforcement in the form or reward or punishment. People with internal locus of control tend to expect reinforcements to be the result of their own efforts compared with an external locus of control where people view their reinforcements as chance, luck, fate or the actions of powerful others (Colman, 2003). The literature suggests that pain sufferers who manifest an internal locus of control are more likely to use active coping strategies and are less likely to be depressed (Jensen et al., 1991). Furthermore, chronic pain clients with external locus of control have been found to be more depressed and distressed and to report lower life satisfaction than those with an internal locus of control orientation.

Perceived control over pain has been found to be associated with mood, psychological functioning and activity levels (Jensen & Karoly, 1991). The most supported reason for this is that people who believe they can control pain feel better due to their persistence with utilising adaptive coping strategies. Another explanation is based on the impact that a sense of control has on well-being. Learned helplessness is related to this sense of control and occurs when people learn that their responses and outcomes are independent of each other (Alloy, Abramson, Peterson & Seligman, 1984). This learning may lead to the expectation that responses will be futile, thus interfering with new situations and further learning (Alloy, et al., 1984). In their review of the literature, Jensen et al. (1991) found that pain control beliefs are consistently related to adjustment, even when controlling for pain severity.

Attribution style has been identified as a risk factor for depression

(Abramson, Seligman & Teasdale, 1978). Three styles of attribution are described by Jensen et al. (1991) and include internal, global and stable. An internal attribution style is characterised by the tendency to view outcomes being due to personal characteristics. A global attribution style is reflected by the expectation that similar outcomes can be expected across a number of situations. A stable attribution is one which suggests that outcomes are due to non-transient factors and are therefore long-lasting. Love (as cited in Jensen et al., 1991) found that depressed chronic pain clients were more likely than non-depressed clients to exhibit all three attribution styles for negative but not positive outcomes.

Pain related cognitive errors such as catastrophising about pain, overgeneralising about pain evoking events and automatic negative thoughts appear to mediate psychological and physical dysfunction. These cognitions and negative thoughts predict long term adjustment to chronic pain (Jensen et al., 1991).

Nicholas (2007) describes self efficacy as judgments about one's ability to perform a specific behaviour, or beliefs about the ability to cope in general. Caudill (2002) refers to self efficacy as a belief in ones ability to manage, function and cope with challenges. These types of beliefs have been found to influence pain tolerance, level of functioning and response to treatment (Dolce, 1987). There is strong evidence to support self efficacy beliefs and their relationship to coping behaviours and adjustment (Morley & Keefe, 2007).

According to Jensen et al. (1991), outcome expectancies are judgements about the consequences of specific actions. For example, beliefs about the outcome of an activity on pain may influence beliefs about ability to engage in the activity, which influences the actual initiation of the activity. Thus the overall

activity level is reduced.

Jensen et al. (1991) also provide other examples of beliefs about pain that may play a role in maladjustment for people with chronic pain. For example, beliefs about being disabled, beliefs about pain being stable, self blame, beliefs of hopelessness and helplessness and beliefs about the actual pain being stressful, harmful and threatening. Better psychological functioning and response to treatment has been linked to individual perceptions that one can accept and cope with their pain, and beliefs about having the support of others (Jensen et al., 1991). These are important factors in the management of chronic pain.

Pain Management

Medical Treatment of Pain. Traditionally, pain was treated from a disease oriented perspective but since the development of Gate Control Theory, the psychological factors relating to pain have been recognised. Despite recent developments in pain management, Caudill (2002) argues that western culture has given rise to a 'quick fix' attitude of using medications to alleviate problems. This unimodal approach is aimed to reduce or eliminate pain at the treatment of tissue pathology level. This has come at the cost of people learning self management strategies to improve their lives, and has led to the frequent assumption that medicine has all the answers. This misunderstanding has contributed to an artificial division of mind and body, which overlooks the interaction between physical pain and psychological suffering. The experience of chronic pain is the manifestation of multiple factors such as the pain signal, expectations of self and others, self esteem, ability to function, previous traumas and beliefs (Caudill, 2002). Furthermore, a singular tissue inflammation explanation of pain is now considered too simplistic, as is a unimodal approach to

the treatment of chronic pain (ACC Development Unit, 2007). Multimodal approaches to conceptualising chronic pain and its treatment are now forefront in the field of pain management (Gatchel et al., 2007).

Multidisciplinary Treatment Approaches. Recent pain management programmes involve a multimodal team approach that assesses physical, psychological and environmental factors relevant to the client's experience. Sometimes chronic pain can not be completely relieved or ameliorated (ACC Development Unit, 2007). The current approach to pain management incorporates the treatment of symptoms with learning to live as best as possible with pain (Caudill, 2002). In conjunction with medical evaluation and monitoring client's are taught strategies and skills to improve their functioning. Ownership of pain, active participation in treatment and personal choice are key strategies that are utilised in the management of pain. Clients are encouraged to learn new ways to relate to pain and are taught to modify routines to allow for discomfort while pacing to avoid extreme discomfort. The emphasis is to increase the client's sense of control and reduce feelings of helplessness and hopelessness. Multimodal treatment components may include strategies such as: recording pain, stress reduction, activity management, cognitive techniques, emotion management, communication, problem solving, goal setting and nutrition (Caudill, 2002). These strategies are aimed to change the pain experience in more adaptive ways for the person. For example, distraction, exercise, engaging in pleasurable activities and relaxation are employed for this purpose.

Recent research by Lohnberg (2007) suggests that specific techniques such as graded in vivo exposure are most effective for people with chronic pain who experience high levels of fear and avoidance in relation to pain. The use of

narcotics for chronic pain are often used as part of treatment but not in place of an active pain management approach which is aimed to improve functioning across several domains (Caudill, 2002). The ACC Development Unit (2007) recommend rationalising medication use and training people to deal with pain flare-ups in ways other than by resorting to medication alone.

Cognitive Behavioural Therapy. Current pain management approaches acknowledge that certain ways of thinking are associated with disability in chronic pain (Vlaeyen & Morley, 2005). A Cognitive Behavioural Therapy (CBT) approach to pain management includes working with cognitions associated with pain and disability – in particular beliefs about self efficacy, locus of control and control over pain. CBT is frequently used to emphasise the linkages between pain, cognitions, affect and physiology and the efficacy for its use has been established (Morley, Eccleston & Williams, 1999). A CBT approach also involves modifying pain behaviour and behaviours associated with reward to encourage individuals to use coping skills (Lohenberg, 2006). Perceived severity of pain has been found to impact the effectiveness of coping strategies. Jensen et al. (1991) conclude that active pain coping strategies are associated with better psychological and physical functioning in comparison to passive coping strategies which are associated with poorer functioning.

Jensen and Karoly (1991) found that in terms of activity level, three coping strategies are important: ignoring pain, diverting attention and using coping self statements. However, these strategies are likely to be more effective with low levels of pain rather than severe pain. Jensen and Karoly (1991) also suggest that people experiencing severe pain may need to alter their perception of pain in order to utilize coping strategies to increase activity levels and reduce

safety behaviours. Bibliotherapy is one self management approach that may provide active coping strategies for the client.

Bibliotherapy and Self Management. The need for alternative formats for delivering psychological treatments for pain has been recognised (Main, Keefe & Rollman, 2002). Bibliotherapy is a form of therapy where a client receives a standardised treatment method to work through without major support from a therapist. Books and computer programs have been used in this way (Gregory, Canning, Lee & Wise, 2004). The early literature on bibliotherapy used with treating depression, utilised it as a control group strategy which was compared with traditional therapy, or as what was considered a diluted version of therapy compared to the traditional (more concentrated) variation of therapy (Cuijpers, 1997). The aim of that research was to consider the extent of therapy required for the effective reduction of depressive symptomology. This process led to the discovery that bibliotherapy was often as effective as traditional therapy and has the benefits of being cost effective, efficient, high quality and accessible (Cuijpers, 1997).

There is growing evidence to support the effectiveness of bibliotherapy, particularly in the treatment of depression (Gregory, et al., 2004). In a meta-analysis of six randomised controlled studies, Cuijpers (1997) found that bibliotherapy for unipolar depression was as effective as individual and group therapy. Cuijpers (1997) argues that bibliotherapy is most effective for people with mild to moderate depression and recommends regular telephone contact and guidance from the therapist. This is so that clients work through the material correctly and are encouraged to persevere with the process.

Multi disciplinary treatment programs emphasise self management where

individuals are automatically assumed to want to participate and adhere to treatment recommendations. Readiness to change and self efficacy have been put forward as important factors that relate to pain and physical and emotional functioning (Heapy et al., 2005). Readiness may influence willingness to self manage and/or adherence to therapist recommendations which may in turn mediate treatment outcomes (Heapy et al., 2005; Vlaeyen & Morley, 2005). Beliefs about the relevance of learning and utilising new skills may also be predictive of willingness to engage and practice the new skills learned.

High drop out rate is associated with bibliotherapy and is considered one it's major limitations (Cuijpers, 1997). Several authors have expressed caution about possible risk to health and wellbeing when bibliotherapy is used and there is no clear diagnosis (Cuijpers, 1997; van Lankveld, 1998). For the present study, all participants had received medical evaluation of some kind and the intervention was provided with support by the primary researcher, who was supervised by experienced clinicians. The intervention is based on acceptance and commitment therapy (ACT) strategies for which the theoretical basis will now be outlined.

Acceptance and Commitment Therapy and Relational Frame Theory

The ACT approach comes from the perspective that human suffering is a normal part of human existence (Hayes, Strosahl & Wilson, 1999). Hayes, Masuda and Dey Mey (2003) refer to ACT as a model of behaviour therapy which emphasises defusion, mindfulness, acceptance, values and committed action. ACT challenges conventional approaches by breaking away from the ideology that if we can control our private experiences we will experience a successful life. This is counter to the findings that suggest that perceived control helps with adjustment. From an ACT perspective control is seen to be counterproductive and

willingness is presented as an alternative where uninvited experiences are accepted. Negative emotions are not considered harmful or seen as determinants of behaviour. Rather, they are an experience which can be learned from (Blackledge & Hayes, 2001). ACT is inherently paradoxical. Abandoning effort to change is the most important change to be made. ACT aims to alter the impact of cognition to facilitate increased capacity for behaviour change (Hayes, Masuda & De Mey, 2003).

The main theory that underpins ACT is Relational Frame Theory (RFT). RFT states that human cognition consists of arbitrarily applied stimulus relations. Human beings have the ability to apply relational rules to things that are not formally related, on the basis of cues that elicit responding. These relational rules mean that human verbal activities relate the events to each other rather than the formal similarities among the stimuli. These verbal relations are strong, difficult to interrupt and are evident in the form of psychological rigidity and the use of self rules (Hayes, Masuda & Mey, 2003). Verbal behaviour is a key to psychopathology and culturally derived change efforts (involving language) are a system that can perpetuate human suffering (Hayes, Strosahl & Wilson, 1999).

Mutual entailment is an example of how a verbal relation is developed and is defined as the ability to decipher a relationship between A and B in a particular context. If a person learns that A is related to B in a particular way, they will also learn that B is related to A in a certain way in that context. Furthermore, if you added a C to the above equation, humans are able to interpret the relationship between C and A in that context. From a RFT perspective, human language and cognition can bring previous psychological and emotional responses to the present time, via derived relations. This means that thinking and talking about pain can

maintain further experiences of pain.

Despite pain being difficult to avoid, traditional approaches to treating chronic pain have aimed toward eliminating pain. From an ACT perspective, the struggle to reduce pain can be part of the problem (McCracken & Vowles, 2006). In reality, chronic pain is rarely eliminated or reduced to low levels and struggling against it can maintain considerable psychological distress (McCracken, 2005). Very often people with chronic pain have restricted their lives in an attempt to 'get better.' Meanwhile the areas of life they care most about have become limited and deficit of fulfilment. Accordingly, an ACT approach is based on acceptance of pain. Acceptance involves reducing behavioural avoidance and has been identified as a key factor in the development and maintenance of chronic pain (Hayes & Strosahl, 2004; McCracken & Eccleston, 2003). The two prongs to acceptance include willingness to experience pain and acting in line with ones personal values. In this light, acceptance is a psychological stance toward and a relationship with pain, but also requires activity that is aligned to ones values and goals. These factors are aimed to promote self efficacy and internal locus of control in the context of pain experiences. This approach is also aimed to modify outcome expectancies and attributions regarding an individual's pain and the fulfilment they can get from their life. As discussed earlier, these factors are linked to better adjustment for individuals with chronic pain. The evidence for the usefulness of ACT will be outlined next.

Evidence for the Usefulness of ACT. In general, there is growing empirical support for ACT with a broad range of problems including depression, a range of anxiety disorders, psychosis, substance use disorders, chronic illness and eating disorders (Hayes, Masuda & De Mey, 2003). This is especially true for

acceptance and cognitive defusion procedures and many ACT components have not yet been researched (Hayes, Luoma, Bond, Masuda, & Lillis, 2006).

Although a relatively new area of investigation, evidence increasingly supports the use of ACT in the treatment of chronic pain (Hayes & Strosahl, 2004; Dahl, Wilson, Luciano & Hayes, 2005). Several studies are presented by Hayes et al. (2006) showing support for ACT exercises in pain tolerance. McCracken and Vowles (2006) present a summary of the findings of over twelve studies which support acceptance and mindfulness techniques as a means to achieving greater pain tolerance, functioning and wellbeing.

Hayes, et al. (2006) provide data from a meta- analysis including 32 correlational studies. Three studies from the analysis found that psychological flexibility (e.g., acceptance) was linked to lower rates of psychological disorder. Findings also indicate a link between psychological flexibility and behavioural effectiveness. In comparison to alternative treatments, cognitive defusion techniques were found to be more effective in reducing discomfort and believability of negative self thoughts.

Brainstetter et al. (as cited by Hayes et al., 2006) compared ACT to Cognitive Behavioural Therapy (CBT) with clients experiencing end stage cancer. ACT participants showed significantly lower rates of anxiety and depression and distress than participants from CBT treatment group. Similarly, ACT acceptance techniques were used by Feldner, Zvolensky, Eifert, and Spria (as cited by Hayes et al., 2006), to illustrate levels of anxiety in relation to experiential avoidance. Participants with high levels of experiential avoidance were reported to experience high levels of anxiety. Woods, Wetterneck, and Flessner (2005) report the efficacy of ACT in reducing hair pulling common with trichotillomania.

Specifically, ACT was found to be significantly linked to decreased experiential avoidance and increased treatment compliance. Other studies also found acceptance to be associated with less avoidant behaviour, less fear and less anxiety (Hayes et al., 2006). There is a small but growing number of studies with ACT have reported significantly improved outcomes in smoking cessation and substance use (Hayes & Strosahl, 2004). Several authors also report support for the utility of ACT with clients with psychotic features (Guadiano & Herbert, 2005; Hayes et al., 2006).

ACT and the Self-Help Book Living Beyond Your Pain. An ACT-based self-help book *Living Beyond Your Pain* by Dahl and Lundgren (2006) provides acceptance exercises and active strategies to engage with pain rather than avoid it. Further strategies that are included in the Dahl and Lundgren (2006) self-help book, are outlined next.

Mindfulness is one technique that has been incorporated into an ACT approach and is covered by the self-help book. Mindfulness is an ancient tradition that involves attending to ones own 'in the moment' experience without judgement (Williams, et al., 2006). Mindfulness is similar to 'acceptance' where the emphasis is on 'being' rather than on change . Shapiro, Carlson, Astin, & Freedman (2006) describe an overarching meta-mechanism for action in terms of the practice of mindfulness. They call this *reperceiving* which involves a shift of perspective and consists of four interrelated sub-mechanisms: (1) self regulation, (2) values clarification, (3) cognitive, emotional and behavioural flexibility, and (4) exposure. Mindfulness can be used by clients who seek change, to interrupt automatic thought patterns and sometimes subsequent behaviours (Eyberg & Graham-Pole, 2005). The ability to stand back and witness ones situation can

help to break habitual ways of responding and change the nature of the actual experience. Mindfulness is used by clients to reduce stress and to increase relaxation and a sense of autonomy by supporting the identification of choices available to the client. Reperceiving allows for a more objective look at ones experience, and disengagement (without disconnection) from being embedded in that experience (Shapiro et al., 2006).

Cognitive defusion is a key component of ACT, and is a strategy for managing language which is also included in the book by Dahl and Lundgren (2006). Cognitive fusion is used to describe the enmeshment of our thoughts and behaviours. Examples of cognitive fusion are constant evaluating and describing, and a reliance on what our 'mind' tells us to do rather than our experience. The aim of cognitive defusion is to separate our thoughts from our behaviour and to see our thoughts for what they are – words without literal meaning (Hayes & Strosahl, 2004; Hayes, Strosahl & Wilson, 1999). The aim of this separation is to undermine the impact of verbal events so that behaviour change can take place.

Another ACT strategy covered by Dahl and Lundgren (2006) is to undermine experiential avoidance behaviour. Focusing on not thinking or feeling something can be counter productive and amplify a problem (Blackledge & Hayes, 2001). The main aim of ACT is to undermine avoidance rules by the use of acceptance (Hayes, Strosahl & Wilson, 1999). This is especially important for people who may have spent many years trying to control their pain and not feel it. Exposure exercises are experiential so the emphasis is moved away from language, describing and explaining. Experiential exercises are used to illustrate limited success of control strategies such as, "don't salivate when you imagine eating a piece of lemon." This example represents the way that when more

control is applied there can be an increase in negative experiences (Hayes, Strosahl & Wilson, 1999). From an ACT perspective, reliance on verbal rules is challenged with an aim to increase the role of experiential wisdom.

Workability is a key ACT strategy which is included in the self-help book. Workability involves evaluation of how successful strategies and outcomes are for an individual. Ultimate values and goals are important and are used to operationalise workability and to clarify imminent struggles (Hayes, et al., 2006; Hayes, Strosahl & Wilson, 1999). Values are central to ACT and underpin all other ACT components. Clarification of values involves asking clients, "What do you want your life to stand for?" Values are utilised to direct behaviour and are guiding principles rather than achievable outcomes (Hayes, Masuda & De Mey, 2003). Application of ACT is reported to utilise the assessment of values, goals, actions and barriers. Together with abandoning the change strategy and a sense of willingness, the emphasis on goal and value aligned action are intended to create circumstances in which effective living and a valued life become possible for the client (Hayes, Strosahl & Wilson, 1999; Blackledge & Hayes, 2001).

Rationale for the Present Study

There is evidence for the use of bibliotherapy as an option for treatment delivery and participation. There is also growing support for the use of ACT across a range of problems including chronic pain. Bibliotherapy and ACT are combined in the Dahl and Lundgren (2006) text which was written to assist people experiencing chronic pain. The current study is unique because it involves the analysis of the effectiveness of an ACT-based bibliotherapy intervention provided with weekly phone support, for people who experience chronic pain. To date there have been no such studies disseminated.

Summary

Chronic pain is problematic for those who experience it and complicated to treat. Chronic pain often leads to disability and poor quality of life and is a costly social phenomenon. Psychological functioning and its relationship with experiences of pain, is a relatively recent area of inquiry. Prior to the development of Gate Control Theory, chronic pain was treated from a medical model where symptom reduction was the main aim. Developments in the field of pain management have led to biopsychosocial models of pain which has meant that current treatment approaches for chronic pain consist of physical, psychological and environmental components. These components are addressed from a multi-disciplinary pain management approach, often including, anaesthetists, clinical psychologists and physiotherapists.

Over time people with chronic pain often develop additional problems such as emotional disturbance, cognitive difficulties, fear and fatigue (Eccleston, 2001). When client's present in this way, the treatment of choice is CBT. The emphasis of CBT is to change the focus from the pain itself to the impact the pain is having. There is a body of support for CBT in the treatment of chronic pain (Morley, Eccleston & Williams, 1999). A more recent form of CBT is Acceptance and Commitment Therapy (ACT). ACT is a third wave of behaviour therapy and there is growing evidence to support its use in the treatment of chronic pain (Dahl, Wilson, Luciano & Hayes, 2005). An ACT approach to working with people, involves giving up an agenda of control and working with an individuals' sources of reinforcement from their environment to improve quality of life, regardless of pain. However, these therapeutic approaches are costly and complicated to administer. A remaining challenge is how to deliver

effective treatment programmes that are tailored to individual needs (Eccleston, 2001).

Bibliotherapy has been found to be a cost efficient and effective way to administer standardised treatment to clients with minimal input from a therapist (Cuijpers, 1997). Bibliotherapy has the added benefit of making treatment accessible for individuals who may not otherwise seek help or have access to psychological services. The literature reports mixed findings regarding the degree of therapist involvement with participants in bibliotherapy interventions, however, most recently there has been support for the superiority of interventions with therapist input (Gregory, Canning, Lee & Wise, 2004). The current study utilises a combination of an ACT-based bibliotherapy intervention and weekly phone support, for people who experience chronic pain.

Aims of the Study

The aim of the present study was to address the question, "Does reading and doing the exercises from the self-help intervention by Dahl and Lundgren (2006) add value to the lives of those who suffer with chronic pain?" Specifically, does utilising the book help in the acceptance of chronic pain? And does it help in terms of mood and quality of life? It was hypothesised that acceptance would increase and that self reports of quality of life and mood will improve on completion of the intervention. To achieve these aims, the following research design and measures were used.

Research Design

This study was a randomised, two group design consisting of a control group and an ACT intervention group. The two group design was chosen to provide a control group comparison to evaluate whether the intervention added

value to the treatment group participants. The intervention was offered as an optional programme to clients who had received medical evaluation either at the Waikato Hospital Pain Clinic or through their general practitioner. Many of the participants were on the waitlist to see the Pain Clinic Psychologist. Others had a degree of distress that might be helped by psychological intervention but not to a degree that was considered enough to be referred to a psychologist. Thus, this design was possible because the participants were either; having to wait anyway without assistance, or would normally not be receiving any psychological assistance at all. Designation to the experimental and control groups was achieved randomly by alternating group assignment as each participant was recruited. At the outset of the research, it was decided that if the intervention was of benefit to the intervention participants, control group participants would later be given the opportunity to participate in the intervention. This was considered ethical and also provided an additional source of data to analyse the effectiveness of the intervention.

To maximise power of the study, the approximate number of research participants required in each group was 20 (Aron & Aron, 2003). The measures utilised in this research were selected to aid in answering the research questions and also to adhere as closely as possible to the 'Initiative on methods, Measurement, and Pain Assessment in Clinical Trials' (IMMPACT) recommendations for research with chronic pain populations (Dworkin, et al., 2005). The IMMPACT recommendations were that the following six outcome domains should be *considered* when designing chronic pain clinical trials: pain, physical functioning, emotional functioning, participant rating of improvement and satisfaction with treatment, symptoms and adverse events, and participant

disposition. The IMMPACT recommendations are for the purpose of determining the efficacy or effectiveness of treatments for chronic pain but Dworkin et al. (2005) also suggest that there may be circumstances in which use of some or all of the core outcome measures will not be appropriate. The measures utilised in the present research covered the domains of acceptance, mood (depression and anxiety), quality of life and satisfaction with life, values illness and pain, and are now described.

Measures

Primary Dependant Variables. Acceptance was the main dependant variable for this study and was measured by the Chronic Pain Acceptance Questionnaire (CPAQ). The CPAQ is a 20 item self report questionnaire designed to measure acceptance of pain. The CPAQ consists of two scales which are activity engagement and pain willingness. Combined, the scales assess the individual's level of activity in the presence of pain and the degree to which the individual attempts to avoid or control pain. The reliability of the CPAQ,has been reported to produce consistency values ranging from .76-.85 (Mc Cracken & Eccleston, 2004). As recommended by the IMMPACT (2005), the CPAQ includes questions about physical functioning. While the CPAQ is not a generic measure of physical functioning, to a certain extent it measures physical functioning as a component of acceptance.

Quality of life was used as a main dependant variable to evaluate the concept of 'adding value' in the present study. Frisch, Cornell, Villanueva & Retzlaff (1992) argue that the Quality of Life Inventory (QOLI) is the only clinically oriented domain based measure of life satisfaction available. The QOLI covers 17 domains of life which are scored by a weighted satisfaction which

includes satisfaction with the area of life and the importance of that area to the individual's well being. The measure is based on the theory that satisfaction is the sum of satisfaction of the 17 domains which are weighted by their relative importance to the individual. The QOLI consists of 17 items which include an importance rating and a satisfaction rating (e.g., two responses per item). Importance ratings are rated on a Likert scale of 0-2 and satisfaction ratings are rated on a Likert scale of -3-3. Test re-test reliability coefficients reported by Frisch et al. (1992) ranged from .91 to .80. Internal consistency was evaluated by using Pearsons correlations of total weighted satisfaction scores and QOLI scores and were better than .98 for all four samples in the Frisch et al. (1992) study. Frisch et al. (1992) also report that QOLI scores were significantly correlated with seven other measures of subjective wellbeing and life satisfaction. This measure is consistent with the CPVI which measures the importance of an individual's value and their satisfaction in that area of their life.

The Satisfaction with Life Scale (SWLS) is a brief five item self report questionnaire that was designed to assess individual satisfaction with life as a whole. This scale measures the judgemental component (rather than the emotional component) of the concept of subjective well being (Weinman, Wright & Johnston, 1995**).** Pavot, Diener, Colvin & Sandvik (1991) (as cited in Weinman, Wright & Johnston, 1995), report that SWLS has demonstrated good reliability and internal consistency. Two month test re-test reliability was 0.82 and inter-item correlations all positive and ranging from 0.44 to 0.81. (Weinman, Wright & Johnston, 1995). Weinman, Wright and Johnston (1995) also report that the SWLS correlates positively with other subjective wellbeing scales.

Secondary Dependant Variables. The Chronic Pain Values Inventory

(CPVI) is a twelve item self report questionnaire that was used to measure the concept *values illness* that is included in the self-help book. The first six items relate to specific areas of life and a rating is given by the individual to quantify the importance of each area. The latter six questions relate to how successful the individual considers they have been at living in accordance with their values in each area. Both scales on the CPVI have demonstrated good internal consistency (.82 for both scales) (McCracken & Yang, 2006). The construct validity for the CPVI has been indicated by success scores having a significant negative correlation with avoidance ($r = -.18$, $p = < .05$) and significant positive correlation with avoidance and discrepancy scores ($r = .25$, $p < .05$) (McCracken & Yang, 2006). This study also demonstrated a trend toward significance for CPVI scores and reporting of pain (McCracken & Yang, 2006).

The Short- Form McGill Pain Questionnaire (SF-MPQ) was also used in the present research and is a self report questionnaire that has been used to assess chronic pain experiences across a number of pain conditions. The questionnaire consists of 15 adjectives that describe sensory and affective aspects of pain in addition to a visual analogue scale and a present pain intensity rating. Grafton, Foster and Wright (2005) report high (.88-.96) intraclass correlations between total, sensory, affective, and average scores on the SF-MPQ and internal consistency values ranging from .88 to .96. Validity of the two factor model has been demonstrated (Wright, Admunsdon & McCreary, 2001) and sensory, affective and total scores correlated highly with the McGill Pain Questionnaire long form on 3 administrations, 3-4weeks apart (Dudgeon, Raubertas & Rosenthal, 1993). The IMMPACT recommendations (Dworkin, et al., 2005) report that the MPQ-SF is reliable and well validated measurement of the sensory

and affective components of pain, Dworkin et al. (2005) also recommend using a pain intensity scale as a primary outcome measure for pain. They (Jensen & Karoly (as cited in Dworkin et al., 2005)) argue that the commonly used methods such as visual analogue scales (VAS), numerical rating scales (NRS) and verbal rating scales (VRS) are all of equivalent utility in detecting improvements in pain. However, Dworkin et al. (2005) report that there is increased likelihood of administration problems and missing data with using VAS measures in comparison to NRS and VRS methods. In the present study, a VAS and a NRS was included in the administration of the MPQ-SF.

The IMMPACT recommendations also state that at least one of two measures of emotional functioning should be used in evaluating the effectiveness of treatments for chronic pain (Dworkin et al., 2005). The two measures that they suggest are the Beck Depression Inventory or the Profile of Mood States (POMS). The Chicago Multi-scale Depression Inventory (CMDI) was used in the present study and is a 50 item self report inventory that was designed to measure depressive symptoms in among medical patient populations. The CMDI has been compared with the POMS (McNair, Lorr & Droppleman, 1971) and demonstrated high correlations between CMDI Mood scale and POM's depression scale and lower correlations with non-depression POM's scales. The CMDI consists of three subscales; Mood, Evaluative and Vegetative which can be used individually or combined. Nyenhuis et al. (1998) advise that the non vegetative subscales are most accurate in examining depression in medical patients. They suggest that the CMDI may help to clarify complex interrelationships between aspects of depression and health-related behaviour. Internal consistency measures for the CMDI have been found to be moderately high in general. The mood subscale has

demonstrated the highest coefficients (.91 and .89) and the evaluative and vegetative subscales have both indicated good internal consistency (.77) (Nyenhuis et al., 1998).

The Beck Anxiety Inventory (BAI) is a 21 item self report questionnaire that was designed to measure symptoms of anxiety. This measure was used in addition to the CMDI as a measure of emotional functioning. The BAI consists of fourteen items representing somatic symptoms and seven representing cognitive symptoms. The BAI has been shown to have high internal consistency (.92) and test-re-test reliability (.75) when re-administered after a one week period (Beck, Brown, Epstein, & Steer, 1988). Factor analysis also by Beck, Brown, Epstein and Steer (1988) demonstrated somatic, anxiety and panic symptoms as distinct from depression. They also found that when comparing groups of clients with anxiety, clients with depression and controls participants, the anxious group indicated significantly higher scores than the depressed group or control group scores (Beck, Brown, Epstein, & Steer, 1988).

Summary of Measures and IMMPACT Recommendations. The present research incorporated measures to answer the research question and adhere as closely as possible to the IMMPACT recommendations for conducting clinical trials to evaluate treatments for chronic pain. The criteria advised in the IMMPACT recommendations were fully met for pain (MPQ-SF), and emotional functioning (CMDI), and are discussed in the above section. In terms of 'symptoms and adverse events' these recommendations were met by the present study design. The minimum recommendation was for a passive capture of spontaneously reported events (Dworkin et al., 2005). The weekly phone contact component of the present study gave participants a forum to report any symptoms

or adverse events relating to the treatment. Open ended prompts (such as, "How has your week been?") were used by the researcher on commencement of the weekly phone calls. Furthermore, each week participants were asked to comment on how useful they found the weekly intervention material.

The criteria recommended by the IMMPACT (2005) for global improvement and satisfaction with treatment, physical functioning and participant disposition were partially met and were incorporated less explicitly as set out in the IMMPACT recommendations. The IMMPACT recommendations include the measurement of global improvement and satisfaction with treatment. Patient Global Impression of Change is the measure suggested by Dworkin et al. (2006) but was not considered appropriate for the present study. Global improvement was captured by the use of QOLI but was not an explicit measure based on the acceptance focus (rather than change agenda) put forward by the self-help book. Satisfaction with treatment was included in the final weeks' questions during the final phone conversation with all participants who took part in the intervention. Participants were asked to comment on the parts they liked most and least about the intervention. In addition to this, each week throughout the intervention, participants were asked to rate the usefulness for the weekly treatment components.

For physical functioning the IMMPACT report recommends the use of disease specific measures of functioning. The nature of this study was that a range of pain conditions and physical problems were included, making it difficult to fulfil this recommendation. As mentioned earlier, the CPAQ consists of questions relating to activities of daily living.

Dworkin et al. (2005) recommend the inclusion of detailed information

about participant disposition and their recruitment and progress throughout the trial. As advised by Dworkin et al. (2005) recruitment of participants was comprehensive and took place via the Waikato Hospital Pain Clinic. From then on, progress throughout the trial was monitored on a weekly basis by the primary researcher who was under constant supervision by the Pain Clinic and University supervisors. Reasons for withdrawal from the study were also documented, but the information overall regarding participant disposition may not have been as comprehensive as advised by the IMMPACT recommendations (2005).

Dworkin et al (2005) emphasise that some of the outcome measures may not be relevant for all conditions or treatments. Based on the scope and nature of the present study, adherence to the IMMPACT recommendations was considered sufficient.

Method

Ethical Approval

Ethics approval was obtained from the Ministry of Health's Northern Y Regional Ethics Committee for approval to conduct this study through a District Health Board organisation. Part of this application also involved approval from Te Puna Oranga (Maori Health) to conduct the study. Ethics approval for research with humans was also obtained from the University of Waikato Psychology Department.

Participants

Participants were selected by the Pain Clinic Psychologist and were either from the Psychologist's waiting list or were people who had a level of distress that might be helped by psychological intervention but whom the Pain Clinic staff had decided not to refer for psychological help. The Pain Clinic Psychologist screened potential participants using the referral/file information, to decide if they met the following inclusion criteria: (1) Reading ability sufficient to read and understand the book and workbook; (2) No major psychiatric disorder that might impede participation; (3) Stable medication (e.g., for 4 weeks and not considered by the Pain Clinic Psychologist, that the medication would interfere with participation); (4) No significant childhood history of trauma. These inclusion criteria were selected to ensure that participants would be able to complete the weekly reading and exercises, and to ensure their safety. After initial pre-screening the Pain Clinic Psychologist phoned the potential participants to assess further their general suitability for participation. At this point the Pain Clinic Psychologist advised participants who agreed to proceed further that the primary researcher would make contact, and also sent participants an information sheet.

After speaking with the potential participants the Pain Clinic Psychologist then provided the primary researcher with names and phone numbers for potential participants.

Twenty four participants met the above criteria and volunteered to participate in the study. 37.5% (n=10) of the participants were male and 62.5% (n=14) were female. Ages ranged from 20 to 84 years with the median age 43. Participants were randomly assigned to the treatment group (n=12) and the control group (n=12). Five of these treatment group participants completed the whole intervention. In addition to these 5 participants, 1 treatment group participant withdrew after the third week and their data is included in the post intervention analysis. A total of 8 control group participants' completed the entire control period and provided pre and post data which was included in the analysis. Four original control participants continued on and completed the self-help intervention and were referred to as the c-t group. The c-t group included an additional participant who withdrew after the third week of the intervention. For total data collected sample size for each group was as follows: original treatment group, n=6, original control group, n=8, and c-t group, n=5. For final analysis of all treatment completers, n=12. These 12 participants were the original treatment group data pooled with c-t data.

Settings

The study primarily utilised participant's homes with the exception to this being two initial meetings in the outpatient Pain Clinic rooms at Waikato Hospital.

Materials

The materials used in the study were:

- Information Sheet (Appendix One)
- Consent form (Appendix Two)
- Battery of questionnaires including: CPAQ, CPVI, QOLI, SWLS, MPQ-SF, CMDI, BAI
- *A copy of the book Living Beyond Your Pain* (Dahl & Lundgren, 2006)
- Workbook to accompany the self-help book (Appendix Three)
- Contacts for psychological assistance outside the study (Appendix Four)

Procedure

Once potential participants had received the information sheet in the mail, the primary researcher phoned them to discuss the study details and their participation. If the participants wanted to participate, an initial meeting time was arranged at either the Pain Clinic or at the participant's home. Participants were randomly designated to control or treatment groups and were assigned to a group alternately as they were contacted. All participants received an identification number for reference on all data. The key for the data was written in a notebook and stored in a locked filing cabinet.

For all participants the first meeting was the same. The meeting consisted of reviewing the information sheet and explaining the study. If participants were keen to participate they signed the consent form. All participants completed the battery of tests and a weekly time was arranged for the researcher to make phone contact with the participant. Control group participants were given the instruction that they would be offered a second meeting six weeks later and that at that meeting they would repeat the battery of tests and have the opportunity to start the intervention. Treatment participants were loaned a copy the self-help book and given their own copy of the workbook to use during the intervention and keep

afterwards.

The workbook was compiled by the primary researcher and was developed to be used alongside the Dahl and Lundgren (2006) text. A copy of the workbook is provided in Appendix Three The workbook included a front sheet explaining the weekly intervention requirements and the remainder of the workbook was divided into 6 weekly sections. Each section consisted of a summary of the weeks' reading, spaces to write and complete exercises from the Dahl and Lundgren (2006) text, and a list of question relating to the content for that week. Participants were instructed to start the first week of the intervention right away. This involved them reading the selected portion of the text (documented in the front sheet of the workbook), completing the exercises in the workbook for that section, and noting the answers to the questions for that week. Participants were reminded of the time slot they would be phoned and that the phone call would be to discuss their answers to the questions for that week.

All participants were phoned by the primary researcher once a week at the prearranged day and time. During each weekly phone call, the control participants were asked to rate their pain on a Subjective Units of Distress (SUD) scale which is a self report scale for individual ratings of pain scores range from 0 (no pain) to 10 (worst pain possible). They also rated their pain according to the Present Pain Intensity (PPI) from the MPQ-SF and were asked if there was anything that they perceived was influencing their pain in a positive or negative way. The PPI is similar to the SUD's scale but is a six item scale where 0 is no pain and 5 is excruciating pain. The main purpose of these questions for the control group was to establish similar conditions for the control and treatment groups.

The weekly phone calls from the primary researcher to intervention participants involved asking three standard questions; (1) Did you do all, some or none of the reading and the exercises? (2) Did you find the reading level easy, medium, or hard? (3) Was the book very useful, moderately useful, or not useful at all? Once these questions had been responded to, the researcher addressed the questions in the workbook for each week. The participants relayed their answers to the researcher who wrote down the participants' responses verbatim. These answers were later evaluated by the researcher to assess comprehension of the material described in the book. An overall percentage of accuracy was ascribed to each weekly block of questions for each treatment participant. For example for week one there were 11 questions. For each participant a week one percentage accuracy score was calculated by dividing the number of accurate answers by the total 11. This gave a percentage out of 100% for each week for each participant. To ensure consistency of results, a random sample of five weekly sets of questions were also scored by Professor Mary Foster.

After they had completed reading the book and using the workbook over a six week period, intervention participants repeated the battery of tests and were finished with the study. After a control participant waited for six weeks, they repeated the battery of tests and were offered the opportunity to continue with the intervention. The same procedures used with the first intervention group were employed. After a second six week intervention period the control-treatment participants completed the battery of tests for the third time.

Reading Level of the Dahl and Lundgren (2006) Text

The reading level of the self-help book was established by the Flesch-Kincaid readability test. The Flesch-Kincaid test is used to indicate the level of

difficulty with reading a specified piece of text. The Flesch-Kincaid is used in the United States Government as a standard test of readability for documents and forms. The test consists of two sub tests. The first is the Flesch Reading Ease and the second is the Flesch Kincaid Grade Level. The reading ease score is a 0-100 score that relates to an average number of syllables per word and average sentence length. The grade level score is a translation of the reading ease score and is useful in terms of making reference to reading material and judging the number of years education required to understand the specified text.

The Flesch Reading Ease score for the Dahl and Lundgren (2006) book was 62.9, which translates to a grade level of 9.3. The equivalent year in the New Zealand context is year 10 which normally consists of children the ages of 14 and equates to approximately nine years total schooling. This information was established prior to recruitment of participants,' however there was no formal selection process for participant's reading level. The Pain Clinic Psychologist used judgment in her decision to offer participation to potential participants.

Results

The aim of the research was to evaluate the use of the self-help work book titled *Living Beyond Your Pain* by Dahl and Lundgren (2006). In particular, this thesis sought to answer the question, "Does reading and doing the exercises from the self-help intervention by Dahl and Lundgren (2006) add value to the lives of those who suffer with chronic pain?"

A total of 24 people were recruited to participate in the study. Of the 24, 12 were randomly assigned to the control group and 12 to the treatment group. The diagram in Figure 1 illustrates the numbers for participation in all groups and the rate of attrition.

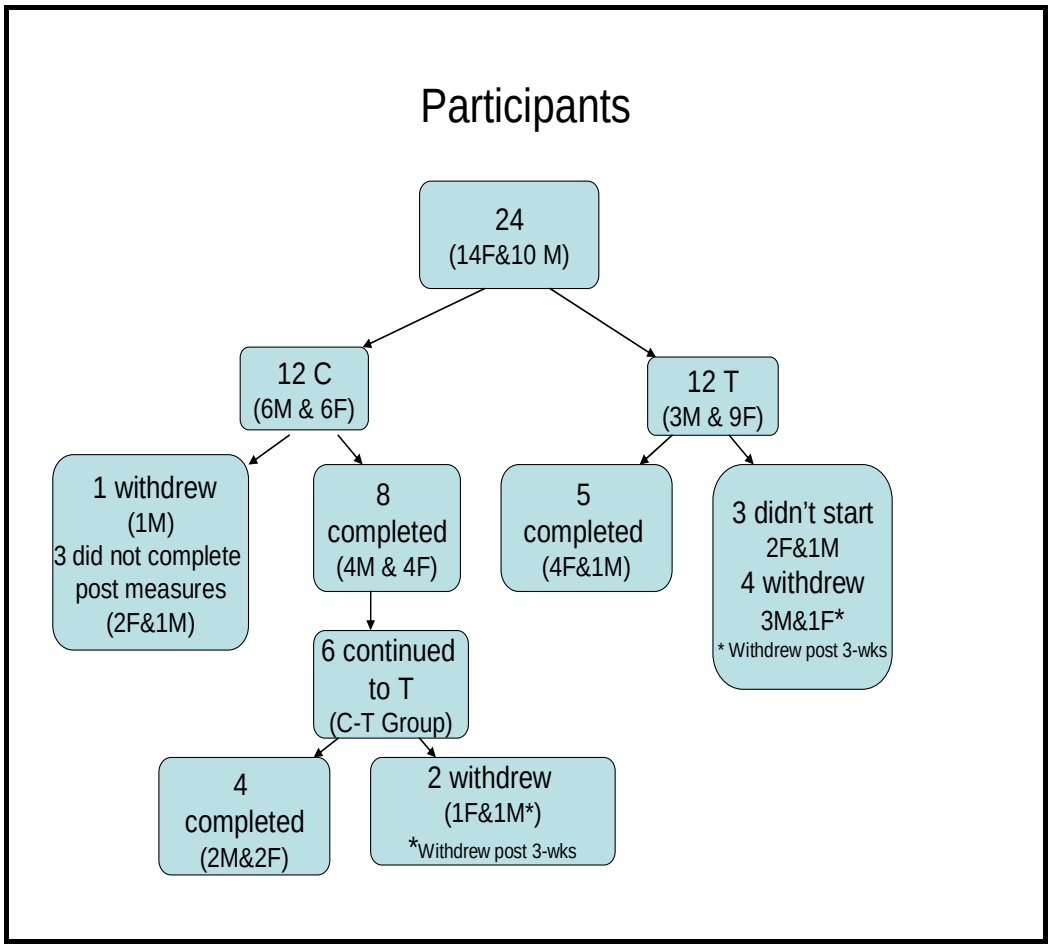

Figure 1. Flow diagram of participation in the study.

Participant details for those who completed all or some of their group requirements are outlined in Table 1. As can be seen in Table 1, the control group consisted of 8 participants, 4 female and 4 male. Also seen in Table 1, the intervention group totalled 5 people and consisted of 4 females and 1 male. In addition to the 5 who completed fully, one treatment group participant (who was female) withdrew after the third week of the intervention and post data (T2) was collected from this participant. The overall age range was 20 to 67 years. The participants who started in the control group and after the control period continued on to complete the intervention are marked with an asterisk under the intervention list. This group consisted of two females and three males and will be referred to as the control-treatment (c-t) group.

Missing Data

Missing data were calculated based on the average of scores for either the relevant subscale (when subscales applied) or the total of items when no subscales were included in the questionnaire.

Intention to Treat Analysis

Intention to treat analysis was applied for participants who withdrew after completing three weeks of the intervention. This did not apply for participants who failed to start the intervention or who withdrew in the first two weeks of participation.

Table 1
Participant Details for Those Who Fully or Partially Participated in the Study

Control Group			Intervention Group		
ID Number	Age	Gender	ID Number	Age	Gender
1	38	F	2	50	F
3	38	M	4	30	M
5	41	M	10	45	F
7[1]	20	F	12	63	F
9	44	F	18	42	F
11[1]	32	M	24[2]	25	F
13[1]	28	F	1ct[3]	38	F
15	55	M	5ct[3]	41	M
17	67	F	17ct[3]	67	F
19	61	F	15ct[3]	55	M
21	57	M	21ct[3*]	57	M

[1] Control group participants who did not complete measures at T2 (post control period)
[2] Treatment group participant who completed three weeks of the intervention
[3] Control group participants who after the control period went on and participated in the treatment fully
[3*] Control group participant who went on and participated in the treatment until the third week

Group Comparisons

This first section of data analysis compares the two initial groups (treatment and control) and excludes the post intervention data for the c-t group. The first administration of the battery of tests is referred to as T1 and the second administration of the same battery of tests is referred to as T2. Within this section, differing numbers for degrees of freedom reflect occasions where data was missing. Table 2 includes the mean data for all participants at T1, data at T1 for those who completed either the intervention or control period, and data at T2 for all who completed at least three weeks of the intervention.

Independent t-tests were used with the mean scores on all of the measures to compare the intervention and control group measures at the beginning of the study. An alpha level of .05 was used here, and throughout this thesis. The results of these are summarised in Table 3 and it can be seen that there were no statistically significant differences between the intervention and control groups means at this initial administration of the questionnaires (that is, at Time 1 (T1)).

Independent t-test were also carried out for control versus treatment groups on all measures at T2 and the results of these are given in Table 4. It can be seen that there was a significant difference at T2 between the control and intervention groups for the BAI (anxiety), CPAQ (acceptance), CPVI (values) and the QOLI (quality of life), and no significant difference at T2 for the CMDI (depression), MPQ-SF (pain) or the SWLS (satisfaction with life).

Table 2

The Average Data (Mean) and Standard Error (s.e.), Together with the Number in Each Group (N) for Each Test in the Battery for all Participants at T1, for Those Who Completed to T2 at T1 and for Those Who Completed to T2 at T2

	T1						T2		
	All Participants			Participants who Completed to T2					
Group	N	Mean	s.e.	N	Mean	s.e.	N	Mean	s.e.
Quality of Life Inventory (QOLI)									
Control	11	35.3	5.0	8	31.1	4.4	8	34.4	6.9
Intervention	12	35.8	3.4	6	41.5	4.0	6	51.0	2.3
Satisfaction with Life Scale (SWLS)									
Control	11	17.6	2.1	8	17.4	1.4	8	18.1	2.9
Intervention	12	15.7	1.7	6	19.3	2.7	6	22.5	2.7
Beck Anxiety Inventory-II (BAI)									
Control	12	21.3	6.0	8	20	3.1	8	18.5	2.7
Intervention	12	17.5	3.9	6	12	3.6	6	8.3	2.2
Chicago Multiscale Depression Inventory (CMDI)									
Control	11	104.4	9.4	8	113.9	8.6	8	102.6	8.8
Intervention	12	122.6	11.8	6	89.0	9.7	6	86.3	10.4
Chronic Pain Acceptance Questionnaire (CPAQ)									
Control	11	56.3	5.1	8	52.3	4.9	8	62.3	8.7
Intervention	12	49.5	3.8	6	59	3.4	5	77.4	4.1
Chronic Pain Values Inventory (CPVI)									
Control	11	10.0	2.3	8	16.0	3.3	8	7	3.1
Intervention	12	11.3	2.2	6	12.7	2.0	6	3.5	1.2
McGill Pain Questionnaire, Short Form (MPQ-SF)									
Control	11	20.5	3.6	8	22.4	3.7	8	20.1	3.0
Intervention	12	21.2	3.2	6	16.0	3.9	5	15.6	3.3

Table 3
The Obtained t Value, the df and the Significance (s) (a =.05) or Otherwise (ns) for the T1 Administration of all Measures for all Participants

Measure	t	df	Significance
BAI	0.3	21	ns
CMDI	1.2	21	ns
MPQ-SF	0.2	21	ns
CPAQ	1.1	21	ns
CPVI	0.4	21	ns
QOLI	0.1	21	ns
SWLS	0.7	21	ns

Table 4
The Obtained t Value, the df and the Significance (s) (a =.05) or Otherwise (ns) for the T2 Administration of all Measures for Control versus Treatment Groups

Measure	t	df	Significance
BAI	3.7	12	s
CMDI	1.7	12	ns
MPQ-SF	1.5	11	ns
CPAQ	3.4	11	s
CPVI	2.4	12	s
QOLI	3.2	12	s
SWLS	2.1	12	ns

Independent t-tests were then carried out for just the participants (from treatment and control groups) who completed both T1 and T2 measures, at T2. These data are presented in Table 5 and show a statistically significant difference between the groups for anxiety (BAI) and statistically non-significant changes for all the other measures.

Table 5
The Obtained t Value, the df and the Significance (s) (A =.05) or Otherwise (ns) for Control Versus Treatment on all Measures for Those Only Who Completed to T2, at T2

Measure	t	df	Significance
BAI	2.8	12	s
CMDI	1.2	12	ns
MPQ-SF	1.0	11	ns
CPAQ	1.3	11	ns
CPVI	1.0	12	ns
QOLI	2.0	12	ns
SWLS	1.1	12	ns

Treatment Effect for Each Measure

To assess the effects of the intervention, a two (group: treatment or control) by two (time: baseline and post intervention) mixed Analysis of Variance (ANOVA) was conducted for each of the measures for T1 and T2. In conjunction with these analyses, effect sizes were calculated as part of the ANOVA (partial η^2) to examine the magnitude of any change for each measure. Effect sizes were considered small if between .10 to .30; medium if between .30 and .50; and large if greater than .50 (Cohen, 1992). The results of these analyses include data for those who completed T1 and T2 measures for the original control and treatment groups and are presented below.

Acceptance as measured by the CPAQ. The ANOVA for the measure of acceptance (CPAQ) showed a significant interaction between group and time ($F(1,10) = 216.32$, $p<.05$, partial $\eta^2 = .56$) and a significant main effect of time ($F(1,10) = 11.75$, $p<0.05$, $\eta^2 = .54$). The main effect relating to the overall difference between the groups (irrespective of T1 and T2) was not significant ($F(1,10) = 3.87$, $p>.05$) and the effect size relating to the strength of the difference between the groups for acceptance, was small (partial $\eta^2 = .28$). Figure 2 shows the means and standard deviations for these data and it can be seen that there is an increase in acceptance for the treatment group post treatment but no change for the control group. This differential effect gives rise to the significant interaction and the significant main effect over time.

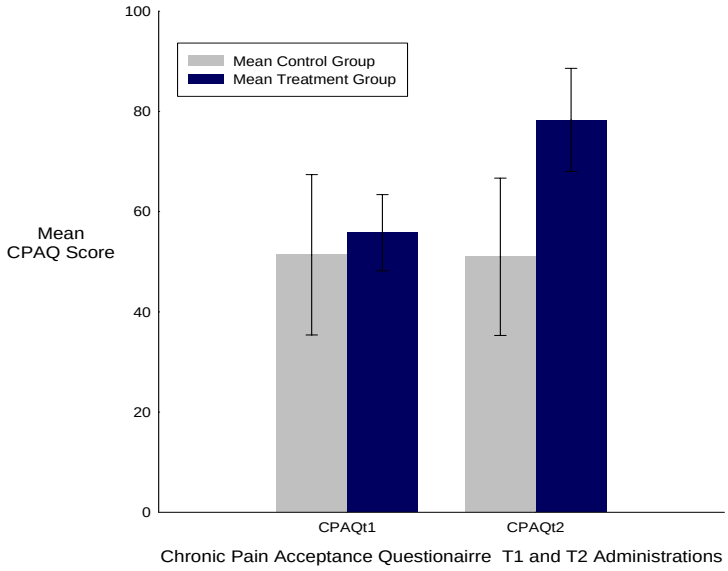

Figure 2. Mean acceptance scores for intervention and control groups at first administration of the CPAQ (T1) and at second administration of the CPAQ (T2), with error bars indicating one standard deviation.

Depression measured by CMDI and anxiety measured by BAI. The ANOVA for the measure of depression (CMDI) indicated no significant interaction between group x time ($F(1,11) = .124$, $p>.05$, partial $\eta^2 = .01$), nor did the ANOVA on the measure of anxiety (BAI) ($F(1,11) = 1.15$, $p> .05$, $\eta^2 = .19$). Main effect of time was also not significant for depression (CMDI) ($F(1,11) = 2.05$, $p>.05$, partial $\eta^2 = .16$) nor for the measure of anxiety (BAI) ($F(1,11)= .253$, $p>.05$, partial $\eta^2 = .02$). Significant differences between the groups overall and irrespective of time were found for the measure of depression (CMDI) ($F(1,11) = 7.52$, $p<.05$, partial $\eta^2 = .41$) and also for the measure of anxiety (BAI), ($F(1,11) = 10.05$, $p<.05$, partial $\eta^2 = .48$). Figures 3 and 4 show these data for the measures of depression (CMDI) and anxiety (BAI) respectively. Figure 3 illustrates stable scores for the treatment group (and control group) depression (CMDI) score across time. As found by the ANOVA, and depicted in Figure 3, the control group mean score for depression (CMDI) were higher than the treatment group

scores, regardless of administration times. Figure 4 shows a decrease in mean anxiety score for the treatment group over time, with somewhat stable control group mean score over time. As seen in Figure 4, and supported by the ANOVA group effect result, depression (CMDI) scores were higher for the control group, irrespective of time.

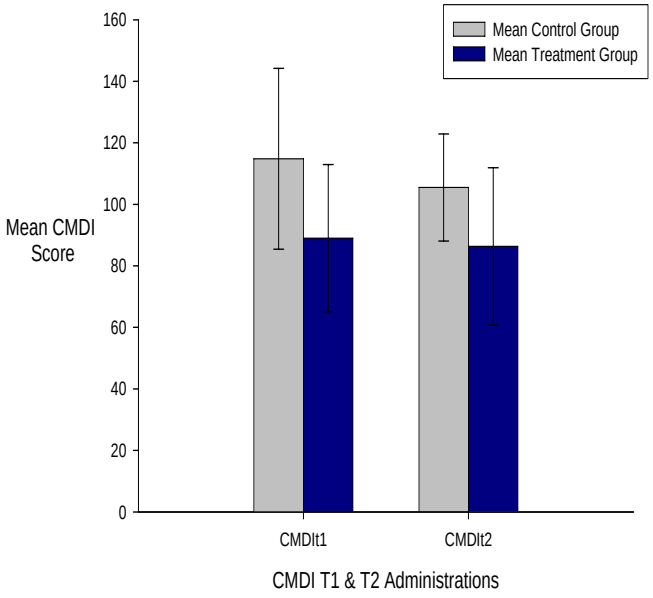

Figure 3. Mean depression scores for intervention and control groups at first administration of the CMDI (T1) and at second administration of the CMDI (T2), with error bars indicating one standard deviation.

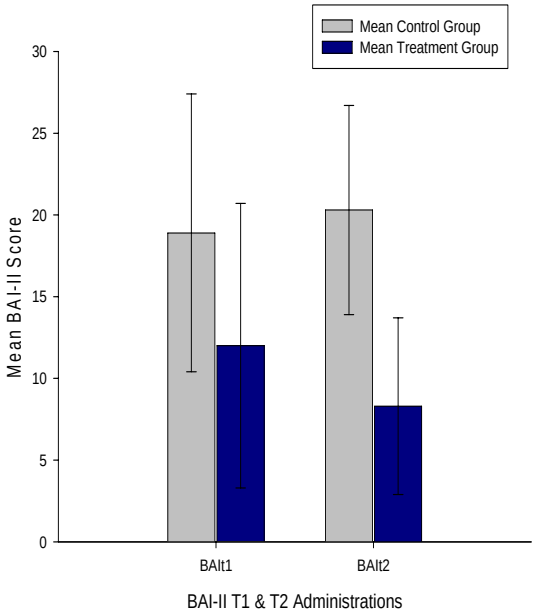

Figure 4. Mean anxiety scores for intervention and control groups at first administration of the BAI (T1) and at second administration of the BAI (T2), with error bars indicating one standard deviation.

Quality of life measured by QOLI and satisfaction with life measured by SWLS. The interaction of group x time for quality of life measure (QOLI), was significant and the corresponding effect size large ($F(1,10) = .11.75$, $p < .05$, partial $\eta^2 = .56$). The main effect of group for quality of life (QOLI) irrespective of T1 and T2 was significant $F(1, 11) = 5.59$, $p < .05$, partial $\eta^2 = .34$). There was a non-significant main effect of time ($F(1,11) = .90$, $p > .05$), however, the effect size for this was large (partial $\eta^2 = .76$). Figure 5 shows means and standard deviations for these data and an increase in mean quality of life score over time for the intervention group. Over the same time period the control group mean decreased slightly.

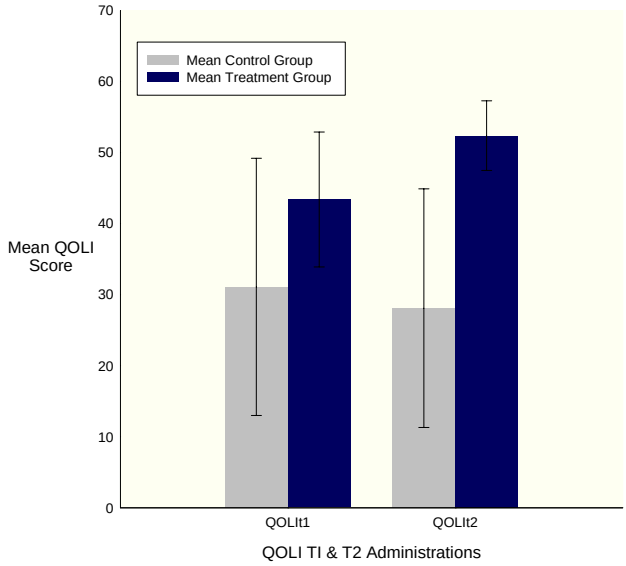

Figure 5. Mean quality of life scores for intervention and control groups at first administration of the QOLI (T1) and at second administration of the QOLI (T2), with error bars indicating one standard deviation.

The ANOVA for satisfaction with life on the SWLS resulted in a non-significant effect for the group x time interaction ($F(1,11) = .772$, $p>.05$, partial $\eta^2 =.07$). The main effect of time was not significant $F(1,11) = .354$, $p>.05$, partial $\eta^2 =.03$), and as was that for group ($F(1,11) = 1.46$, $p> .05$, $\eta^2 =.12$) for SWLS scores. Figure 6 plots the means and standard deviations for these data and shows there was really no change over the two time periods.

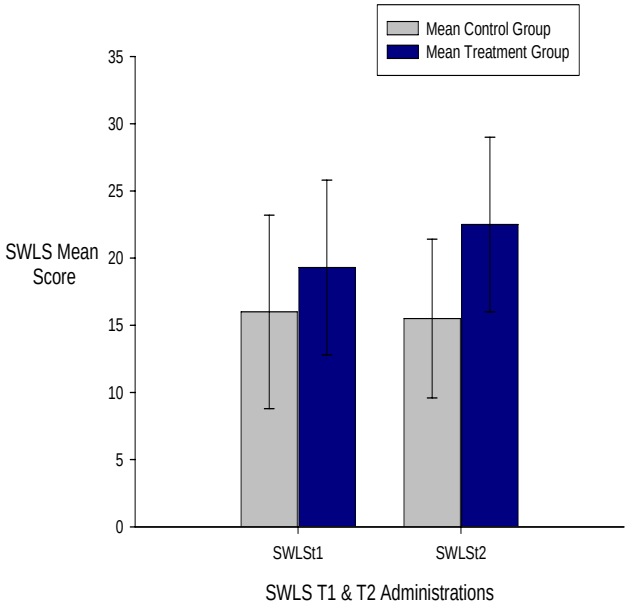

Figure 6. Mean satisfaction with life scores for intervention and control groups at first administration of the SWLS (T1) and at second administration of the SWLS (T2), with error bars indicating one standard deviation.

Pain. The ANOVA on the pain measure (MPQ-SF) showed a non-significant interaction of group and time ($F(1,10) = .472$, $p>.05$, partial $\eta^2 = .05$) and a non-significant main effect of time ($F(1,10) = .41$, $p>.05$, partial $\eta^2 = .04$). The ANOVA for group differences on the MPQ-SF irrespective of time, was also not significant ($F(1,10) = 2.51$, $p>.05$, partial $\eta^2 = .20$). Figure 7 shows the means and standard deviations for these data and although the change was not significant, the graph illustrates a decrease in MPQ-SF mean score at T2 for the intervention group.

Values illness. The ANOVA on the measure of values illness indicated a non-significant interaction effect of group and time ($F(1,11) = 2.64$, $p>.05$, partial $\eta^2 = .19$) and a non- significant main effect of time ($F(1,11) = 1.30$, $p>.05$, partial $\eta^2 = .11$). Means and standard deviations for these data can be seen in Figure 8 which shows a decrease (but not significant) for mean treatment group values illness over time, while control group mean remained stable. Overall group

differences on the measure of values illness were also not significant ($F(1,11) = 3.49$, $p>.05$, partial $\eta^2 = .24$).

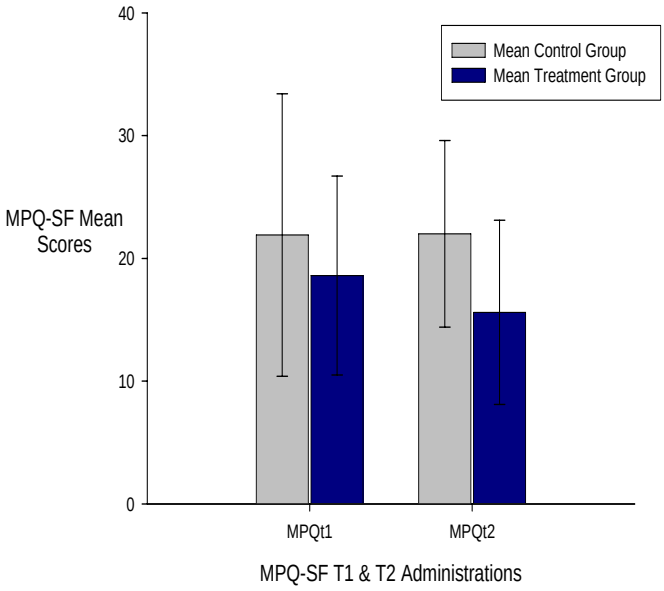

Figure 7. Mean pain scores for intervention and control groups at first administration of the MPQ-SF (T1) and at second administration of the MPQ-SF (T2), with error bars indicating one standard deviation.

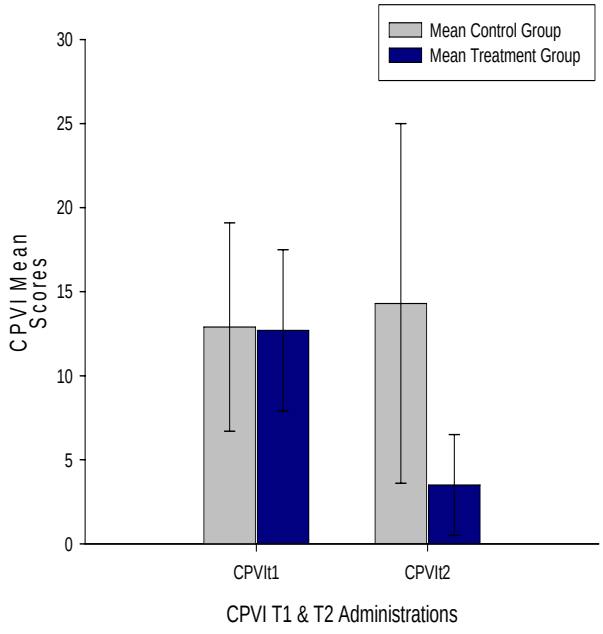

Figure 8. Mean values illness scores for intervention and control groups at first administration of the CPVI (T1) and at second administration of the CPVI (T2), with error bars indicating one standard deviation.

Combined Data

In order to determine if it was possible to combine the data from the first treatment group, with those who underwent treatment following a control period, a series of analyses were undertaken. Consideration of the small n for the c-t group was given in deciding to conduct parametric tests. To keep consistency across the analyses, and because t-tests are relatively robust, parametric tests were used throughout the analyses. Paired sample t–tests were conducted on the pre (T1) and post (T2) measures of the control group participants who continued on to complete the intervention (c-t group) and the results are given in Table 6. There were no differences in the measures from the two administrations, suggesting no change over the control period for the c-t group. Thus, the data from T2 from the control group could be used as their baseline data. T-tests were performed on the c-t data comparing T2 and T3 measures. The t-test results are presented in Table 6 and indicate that there were no statistically significant changes from T2 to T3.

Table 6
The Obtained Paired-Sample t Value, the df and the Significance (s) (a = .05) or Otherwise (ns) for the T1 Versus T2 and T2 Versus T3 Administrations of all Measures for the c-t Participants

	T1 vs T2			T2 vs T3		
Measure	t	df	Significance	t	df	Significance
BAI	0.4	4	ns	0.4	4	ns
CMDI	0.2	4	ns	0.5	4	ns
MPQ-SF	0.4	4	ns	1.6	4	ns
CPAQ	0.5	4	ns	2.7	4	ns
CPVI	0.8	4	ns	2.2	4	ns
QOLI	0	4	ns	2.0	4	ns
SWLS	0.8	4	ns	2.5	4	ns

To determine if it was possible to combine the two treatment groups, independent t-tests were used to compare T1 scores for the original treatment group with T2 scores for the control group who went on to treatment (c-t). Table 7 shows the results. There were no significant differences between the original treatment group T1 means and the control group T2 means for all measures,

suggesting that data from these two groups could be combined.

Table 7
The Obtained Independent Sample t Value, the df and the Significance (s) (a = .05) or Otherwise (ns) for c-t Group T2 versus Original Treatment Group T1, for all Measures

Measure	t	df	Significance
BAI	0.7	15	ns
CMDI	0.6	15	ns
MPQ-SF	0.7	14	ns
CPAQ	0.5	15	ns
CPVI	1.0	15	ns
QOLI	0.3	15	ns
SWLS	0.8	15	ns

As there were no statistically significant differences in the baseline measures between the two groups, the original treatment group T1 (pre active treatment) and T2 (post active treatment) data were combined with the c-t group T2 (pre active treatment) and T3 (post active treatment) data and the resulting pre-treatment and post-treatment data were compared using repeated measures t-tests and the results are presented in Table 8. Significant differences between the pre and post treatment scores were found for acceptance (CPAQ), values illness (CPVI), quality of life (QOLI) and satisfaction with life (SWLS). Anxiety (BAI), depression (CMDI) and pain (MPQ-SF) comparisons were not statistically significant.

Table 8
The Obtained Repeated Measures t Value, the df and the Significance (s) (a = .05) or Otherwise (ns) for Pre and Post Measures for all Participants Who Completed at Least 3-Weeks of the Intervention (Pooled Data)

Measure	t	df	Significance
BAI	1.0	10	ns
CMDI	0.7	10	ns
MPQ-SF	1.7	9	ns
CPAQ	4.1	9	s
CPVI	4.0	10	s
QOLI	3.6	10	s
SWLS	2.8	10	s

In order to examine the effect of treatment in the c-t group alone, a repeated measures ANOVA was conducted to see if there was any significant change across T1, T2, and T3 for the c-t group. The repeated measures ANOVA results for the c-t group show non-significant main effect of time for anxiety (BAI) ($F(2,8)= 0.13$, $p>0.05$, $\eta^2 = 0.03$, depression (CMDI) ($F(2,8)=0.29$, $p>0.05$, $\eta^2 =0.07$, and pain (MPQ-SF) ($F(2,8)=0.74$, >0.05, $\eta^2 =0.16$)

The main effect for values illness (CPVI) was also not significant ($F(2,8)=2.58$, $p>0.05$), but the effect size for this measure was medium ($\eta^2 =.39$). Similarly, the main effect of time for quality of life (QOLI) was not significant ($F(2,8)=2.44$, $p>0.05$), but the effect size for this measure was medium ($\eta^2 =.38$). For the measure of satisfaction with life (SWLS), the main effect of time was also not significant ($F(2,8)=2.5$, $p>0.05$), with a corresponding medium effect size ($\eta^2 =.39$).

The ANOVA for acceptance (CPAQ) resulted in a significant main effect of time (CPAQ) ($F(2,8)=5.52$, $p=<0.05$), and a large effect size ($\eta^2 =.58$). The means and standard deviations for these c-t group data are plotted in Figure 9 and show three administrations (T1, T2 and T3) of the battery of tests. The mean scores plotted in Figure 9 show results consistent with the findings thus far, such as increased acceptance (CPAQ), quality of life (QOLI) and satisfaction with life (SWLS), and decreased values illness (CPVI).

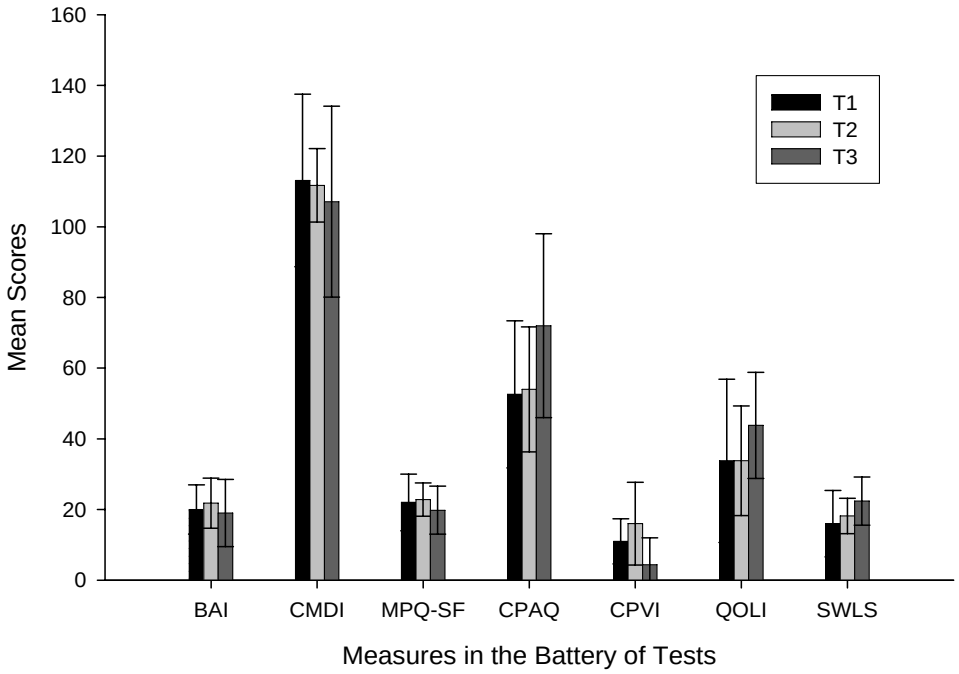

Figure 9. c-t group mean scores at T1, T2 and T3 for all measures in the battery of tests.

Treatment Integrity

Table 9 presents the intervention week number alongside the weekly reading requirement and the corresponding content for that week.

Engagement. To evaluate the usefulness of the self-help book for people with chronic pain, it was important to know how much of the weekly reading and exercises participants completed. Five participants from the initial treatment group completed the intervention fully with variations in the amount of weekly work they completed. One additional participant withdrew after the third week of the intervention. Figure 10 depicts the percentages of participants for each week according to whether they completed all, some, or none of the weekly requirements as outlined in the workbook (Appendix Three). These data include all treatment group participants' weekly information up to the week they completed. This means if participants withdrew after having started the intervention, their data were included until that point. Figure 10 shows that the

majority of participants in this group fairly consistently did all or some of the weekly requirements. There was a slight decrease in the percentage of participants that completed all, at Week 4, with a corresponding increase in the percentage that did 'some' for Week 4. Week 4 corresponds with the Mindfulness chapter in the self-help book. Figure 11 plots the weekly completion data for the control participants who continued on with the intervention (c-t group). Figure 11 shows more variation in the amount completed each week but that all participants completed all or some of the intervention each week. Similar to the original treatment group, and seen in Figure 11, the c-t group showed a decrease in the percentage of participants who completed all the requirements at Week 4.

Table 9
Intervention Week Numbers with Corresponding Book Chapters and Chapter Content

Intervention week	Corresponding book chapters	Content
1	Intro, 1 & 2	What is pain, what is ACT? Control is not the answer
2	3	What do you value?
3	4	Your thoughts are not what they say
4	5	Mindfulness
5	6 & up to page 136 of Ch 7	Willingness and action
6	from 136 of Ch 7 & Ch 8	Action and barriers Conclusion

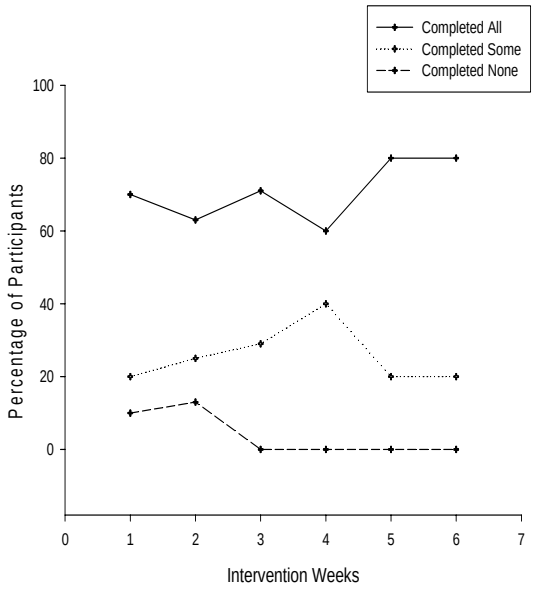

Figure 10. Weekly completion of reading and exercises for all original treatment group participants throughout the intervention period.

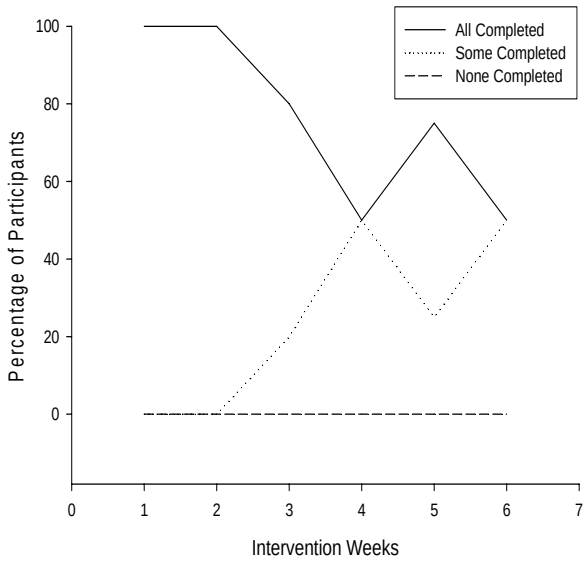

Figure 11. Weekly completion of reading and exercises for c-t group participants throughout the intervention period.

Comprehension. In addition to looking at treatment effects, this thesis sought to explore what parts of the material participants understood and level of understanding that they achieved. Individual treatment group participants' weekly accuracy scores are plotted in Figure 12. These data were calculated from

participants' responses to the weekly questions outlined in the workbook (see Appendix Three) and are for participants who completed the intervention fully. During the weekly phone call with the primary researcher, participants provided answers to the questions in the workbook for that week. The researcher wrote the answers down verbatim and after the phone call the researcher evaluated the answers and calculated a percentage score (out of 100%) for that week. For several reasons such as difficulty with answering questions and missing data, Figure 12 includes four of the participants' weekly scores. Figure 12 shows that accuracy decreased at week 3 or 4 for 2 participants. Figure 12 also indicates week 2 gave the highest level of accuracy for all the participants.

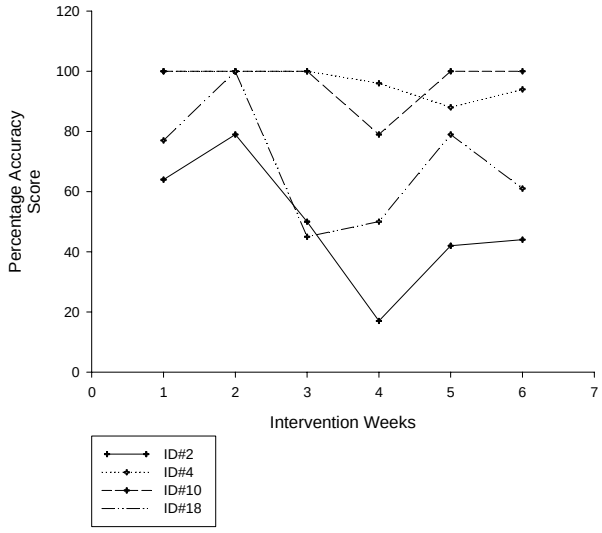

Figure 12. Individual Treatment group participant's comprehension scores for each week of the intervention period.

Figure 13 plots weekly comprehension scores for the c-t group participants. One participant was excluded from this due to difficulties with answering the questions and following the requirements as set out in the workbook. Figure 13 shows highest accuracy scores at Weeks' 2, 5 and 6 with the lowest accuracy scores at Week 4 and Week 1.

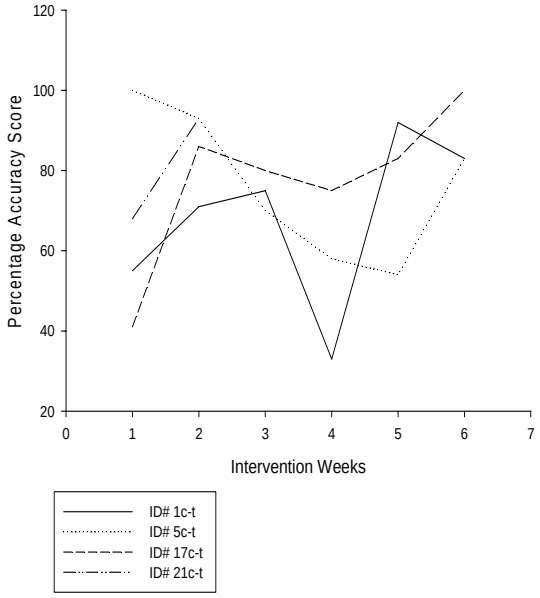

Figure 13. ct group participant's comprehension scores for each week of the intervention period.

Participant Perceptions

Perceived Usefulness. The overarching aim of this study was to establish whether using the self-help book added value to the lives of people with chronic pain. This thesis sought to find out whether participants considered the material useful including the degree to which they found the book useful, and the parts they found most or least useful. During each weekly phone call, intervention group participants were asked to rank the level of usefulness (very useful, somewhat useful, or not useful) for the weeks reading and exercises. Figure 14 shows the percentages of intervention group participants who found the weekly requirements either: very useful, somewhat useful, or not useful for each week of the intervention. It can be seen in Figure 14 that the parts of the book considered most useful by the greatest number of participants in the original treatment group were Week's 5 and 6 of the intervention. Week's 5 and 6 were also associated with no rankings of 'not useful.' Figure 14 also shows peaks for 'somewhat useful' rankings at Weeks 2 and 4. Week 3 received the highest number of

participants ranking ‘not useful,’ whereas for the other weeks, the majority of participants gave the ranking ‘somewhat’ or ‘very’ useful.

Figure 15 plots participants’ usefulness ratings for the c-t group. As seen in Figure 15, this group showed highest useful ratings for Weeks 2 and 3, with an increase in the ranking ‘no use’ from Weeks 3 to 6.

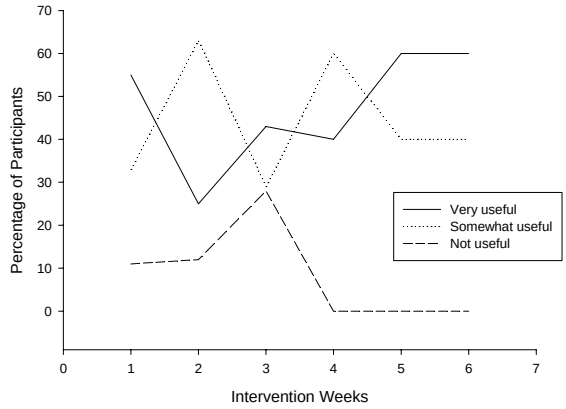

Figure 14. Original treatment group participant’s ratings of level of use of the weekly requirements (reading and exercises) over the intervention period.

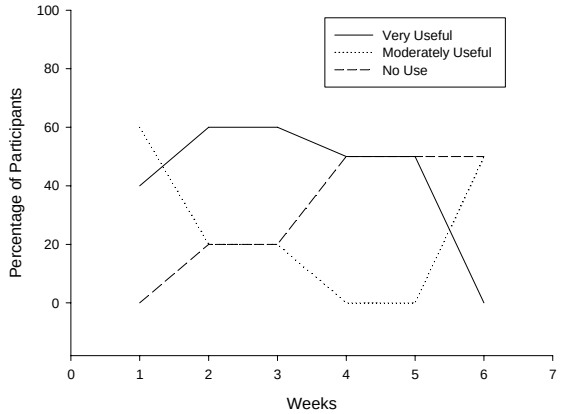

Figure 15. c-t group participants’ ratings of level of use of the weekly requirements (reading and exercises) over the intervention period.

Perceived Reading Level. As part of evaluating the utility of the book, participants were asked to rank each weekly reading requirement in terms of the level of difficulty (easy, medium or hard). This information is presented in

Figure16 and shows that overall a small percentage of participants ranked the reading level as ‘easy.’ Weeks 1 and 3 gave the least ‘easy ‘ rankings with Week 3 also receiving the greatest number of ‘hard’ rankings. Figure 16 shows a general increase in difficulty rankings from Week 2 to Week 3, which then stabilises with the majority ranking ‘medium’ or ‘hard’ for the remainder of the intervention weeks.

Figure 17 plots reading level ratings provided by c-t group participants’ over the course of the intervention and shows that Weeks 2 and 6 were associated with the highest percentage of ‘easy’ ratings. Week 1 resulted in the highest percentage of ‘hard’ ratings, with the middle weeks of the intervention (3-5) showing variability in ratings.

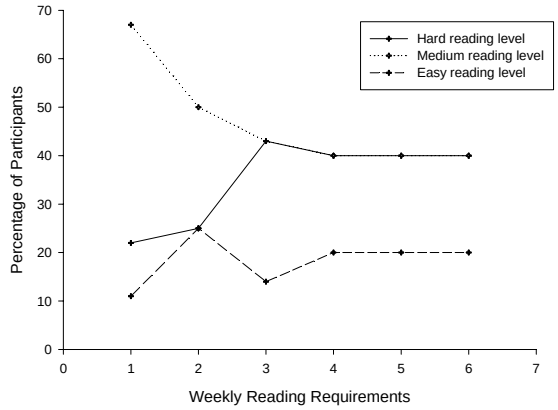

Figure 16. Original treatment group participants’ ratings for difficulty of reading level per week over the intervention period.

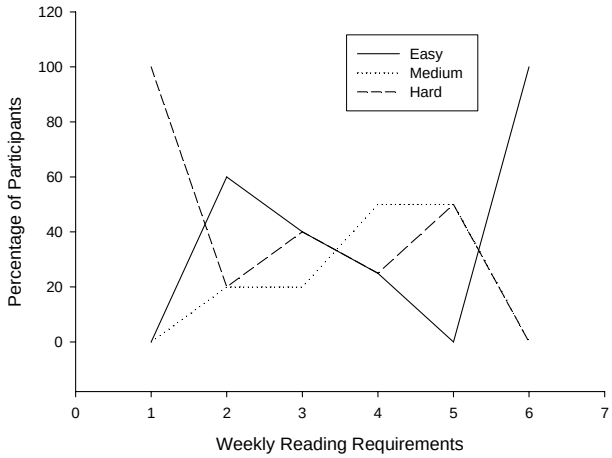

Figure 17. c-t participants' ratings for difficulty of reading level per week over the intervention period.

Individual Data

Firstly, individual data were analysed for treatment group participants who fully completed the intervention (Participant's 2, 4, 10, 12 and 18). Figure 18 shows participant 2's T1 (pre) and T2 (post) scores for all measures included in the battery of tests. Consistent with results of the statistical analyses, Figure 18 shows an increase in acceptance (CPAQ) score and an increase in quality of life (QOLI) score. The ACT concept of *values illness* is addressed in the self-help book and Figure 18 shows there was a decrease of values illness for Participant 2. Participant 2's scores on the BAI (anxiety) and the MPQ-SF (pain) increased over the intervention period. For satisfaction with life (SWLS), Participant 2's score increased slightly at T2.

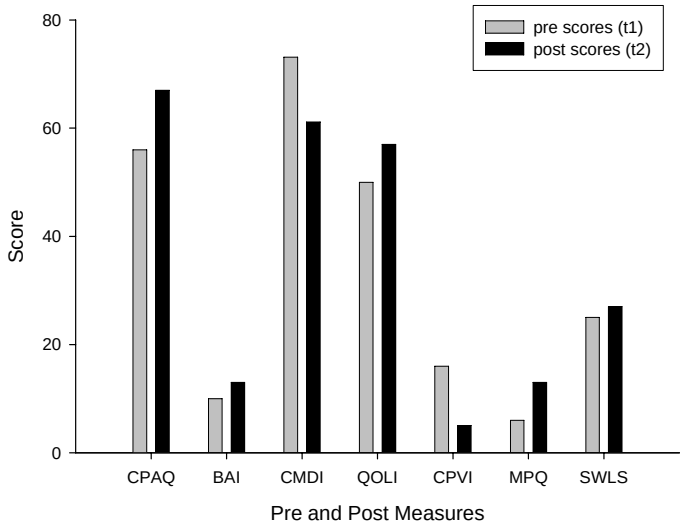

Figure 18. Individual participant data (Participant 2) including T1 (pre) and T2 (post) scores for all measures included in the battery of tests.

T1 (pre) and T2 (post) results across all measures for Participant 4 are depicted in Figure 19. Similar to Participant 2, Figure 19 shows an increase in acceptance (CPAQ) score at T2 and an increase in quality of life (QOLI) score at T2. For this participant values illness (CPVI) decreased at T2 and satisfaction with life (SWLS) score increased at T2. Also in this case anxiety (BAI) score was reduced at T2, as was self reported level of pain measured by the MPQ-SF.

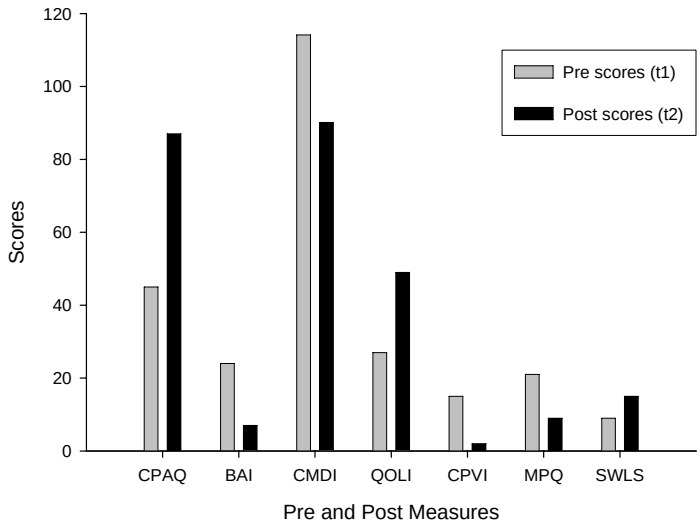

Figure 19. Individual participant data (Participant 4) including T1 (pre) and T2 (post) scores for all measures in the battery of tests.

Data for Participant 10 is shown in Figure 20. Again this participant's data show an increase in acceptance (CPAQ) score at T2 and an increase in quality of life (QOLI) score at T2. For mood, Participant 10 reported a slight decrease in anxiety symptoms at T2 and an increase in depressive symptoms at T2. Figure 20 also shows a decrease in values illness (CPVI) at T2 and a decrease in pain (MPQ-SF) score at T2 for this participant.

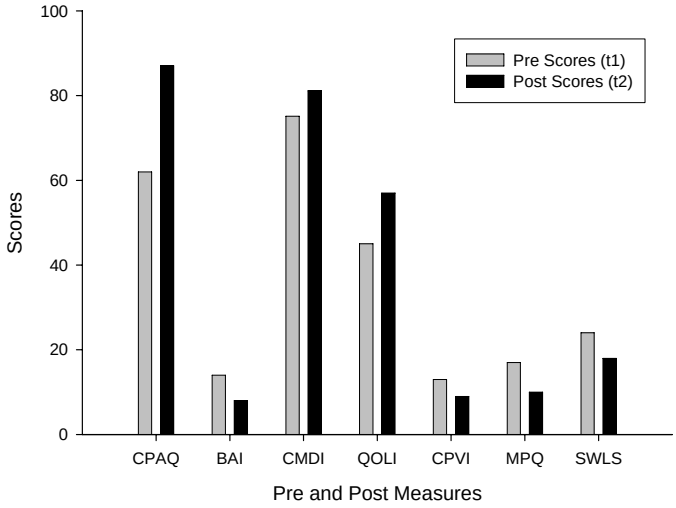

Figure 20. Individual participant data (Participant 4) including T1 (pre) and T2 (post) scores for all measures in the battery of tests.

Figure 21 shows Participant 12's T1 (pre) and T2 (post) scores for all measures excluding acceptance T2 (CPAQ) and pain T2 (MPQ-SF) from the battery of tests. Results for acceptance (CPAQ) and pain (MPQ-SF) scores are missing from this set of data due to the participant reporting that chronic pain did not apply at T2 (post testing). The findings shown in Figure 21, illustrate a decrease in values illness (CPVI) and an increase in satisfaction with life (SWLS) score at T2.

Figure 22 shows Participant 18's T1 and T2 scores for all measures in the battery of tests. These data show an increase in acceptance (CPAQ) at T2 and a decrease in values illness (CPVI) at T2. Although the changes are small for the remaining measures, all T2 scores for Participant 18 changed in the hypothesised direction.

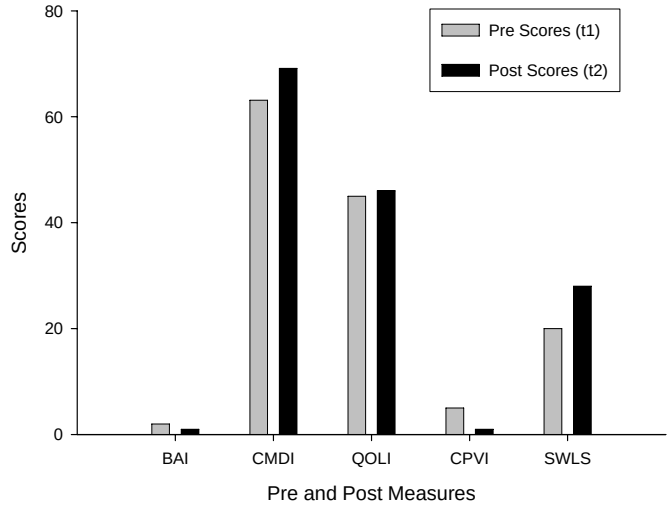

Figure 21. Individual data for Participant 12 including T1 (pre) and T2 (post) scores for all completed measures from the battery of tests.

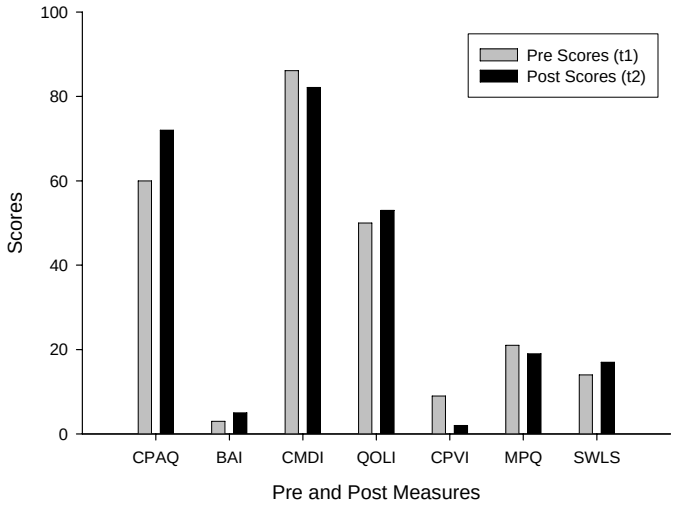

Figure 22. Individual data for Participant 18 including T1 (pre) and T2 (post) scores for all measures in the battery of tests.

The second section of the individual data analysis involved the c-t group participants' individual pre and post active intervention data for all measures. Figure 23 depicts these data for Participant 1c-t and shows increases in acceptance (CPAQ), quality of life (QOLI), and satisfaction with life (SWLS). Decreases in anxiety (BAI), depression (CMDI), pain (MPQ-SF) and values illness (CPVI) are

also seen in Figure 23.

Individual data for Participant 5c-t is plotted in Figure 24 and shows increases in depression (CMDI) and anxiety (BAI) post active intervention. A small improvement in quality of life (QOLI) is depicted in the graph, with little change on all other measures.

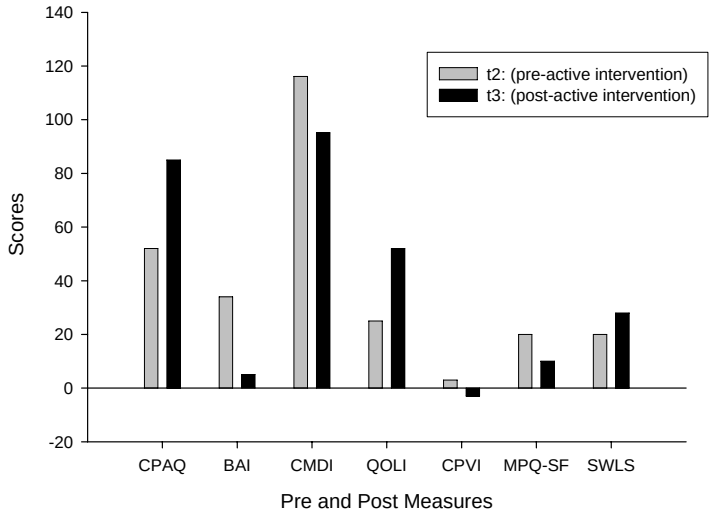

Figure 23. Individual data for Participant 1c-t including T2 (pre-active intervention) and T3 (post-active intervention) scores for all completed measures from the battery of tests.

Individual data for 15c-t is plotted in Figure 25 and shows increases in acceptance (CPAQ), quality of life (QOLI) and to a lesser extent satisfaction with life (SWLS), on completion of the self-help intervention. Decreases in depression (CMDI) score and values illness (CPVI) are also evident for this participant, with little change in anxiety and pain scores at post-active intervention.

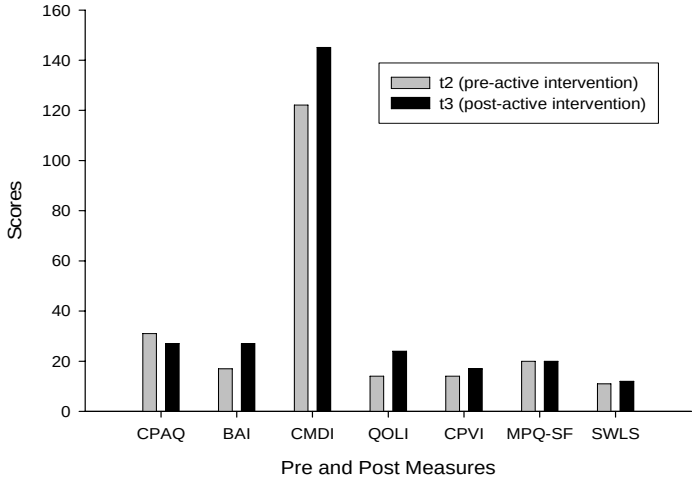

Figure 24. Individual data for 5c-t including T2 (pre-active intervention) and T3 (post-active intervention) scores for all completed measures from the battery of tests.

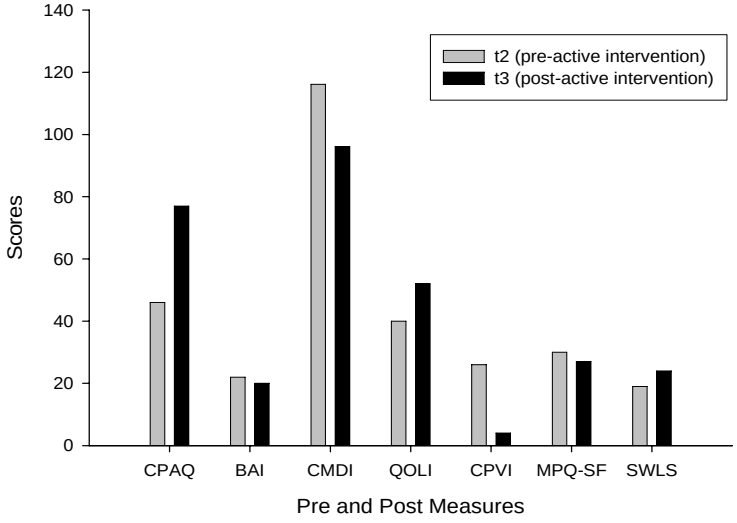

Figure 25. Individual data for 15 c-t including T2 (pre-active intervention) and T3 (post-active intervention) scores for all completed measures from the battery of tests

Pre and post active-intervention scores for Participant 17c-t are plotted in Figure 26 and show an increase in acceptance (CPAQ) score and a large reduction in values illness (CPVI) on completion of the intervention. Figure 26 also shows a decline in depression (CMDI) score post active intervention, and minimal change on the remaining measures.

Participant 21c-t was the participant who withdrew from the active

intervention condition after the third week. Figure 27 shows pre and post-active intervention data for this participant and highlights increases in acceptance (CPAQ) and satisfaction with life (SWLS), and a decrease in values illness (CPVI). Anxiety (BAI) and depression (CMD) scores increased over time for this participant, who also showed little change on the measures of quality of life (QOLI) and pain (MPQ-SF) at the time of withdrawal from the study.

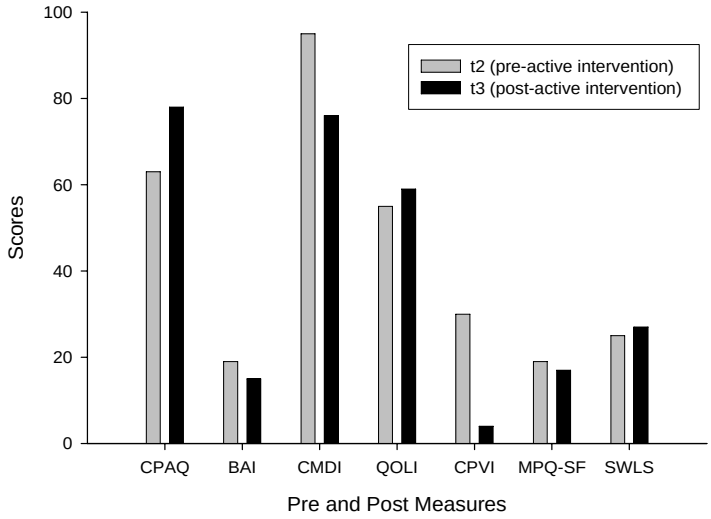

Figure 26. Individual data for Participant 17-ct including T2 (pre-active intervention) and T3 (post-active intervention) scores for all completed measures from the battery of tests.

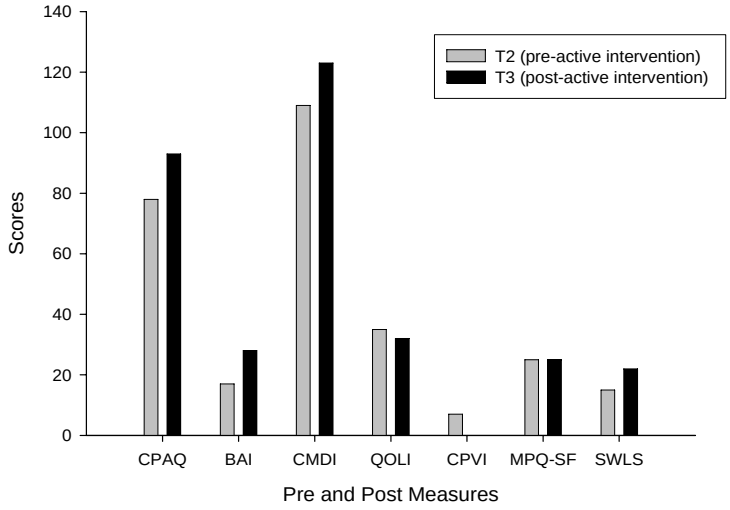

Figure 27. Individual data for Participant 21c-t including T2 (pre-active intervention) and T3 (post-active intervention) scores for all completed measures from the battery of tests.

Participant's Comments

In the final week of the intervention, participants were asked to comment on the parts they liked most and least about the book. All information provided by participants in response to these questions is provided in Table 10. Comments are paraphrased unless quoted. Table 10 shows that comments were mixed, with more positive than negative comments overall.

Table 10
Participants' Reports of the Parts of the Book They Liked Best and Parts They Liked Least

ID #	Positive comments	Negative comments
1c-t	"It's a really good book" "It really made me think about pain differently" "I never would have gone on a trip like this (to south island) if I hadn't done the intervention"	"Different jargon" "Some parts were hard to understand"
2t	"Enjoyed the start but petered off when not feeling well" "Liked some of the exercises" "Getting assistance with it" "Overall it has been helpful"	"Some of the wording is hard to understand" "Was hard to get head around" "It would be hard if you had problems reading"
4t	Beginning of the book Good metaphors Mindfulness Emphasis on not judging self Getting assistance as you work through it "I have experienced positive changes in thinking"	"Sometimes hard to understand" (Week 3- cognitive defusion and concepts of self) "The three concepts of self are the most challenging"
5c-t	"Positive book" "Leads to points gently and gradually" "The message is good"	"Conclusions are simplistic and patronising" "I dislike the attitude that pain is part of life and 'oh well, get on with it'" "Felt like being preached at" "Harder to do when pain was worse"
10t	"The tone of the book is non- judgemental" "Not over the top or intrusive" "Left control in your own hands"	"The order of the Bus Exercise (p128) was too late. Would have been more useful earlier on."
12t	"The book has helped me through the rest of my journey with pain. I no longer have chronic pain."	"Sometimes the wording was difficult to understand" (concepts) Hard to confront private/avoided personal information "I'm beyond this stage now" / timing
15c-t	"Good information about medications and medical procedures"	"It was repetitive" "Pain is pain. When you have it you have to do something about it. You can't split it into two parts; you have to get rid of it. If I focus on pain it gets worse." "I am beyond this stage – it would have been more useful earlier on. I am getting on with it."
17c-t	Very useful strategies to keep for life Tools I wont forget – to commit to a better life I have increased my activities – especially trips away Positive changes in thinking Felt like it was written for me	I didn't dislike anything - all written to be helpful
18t	Hit me close to home Made me realise new things	Made me feel I could push pain away Tells you pain is controllable but it's not Harder to do when pain was worse
21c-t	The book is great, it works - it's just that I already live the way the book suggests. If you can learn to live with pain your life is richer and healthier. The book is very supportive	Nothing
24t	All of it was good It helped me a lot The values part was pretty good Helped me to be more aware of how I deal with my pain Has helped me deal with the death of my brother	There was nothing I didn't like about it

Pain Severity and Engagement

During the weekly phone calls with the primary researcher, many participants in the treatment group commented about their reduced ability to engage with the book when their pain was worse than usual. Figure 28 shows presents participants' initial (T1) pain scores on the MQP-SF plotted against the number of intervention weeks completed for each participant from the intervention group. Figure 28 shows that generally the fewer the number of weeks completed the higher the initial pain scores.

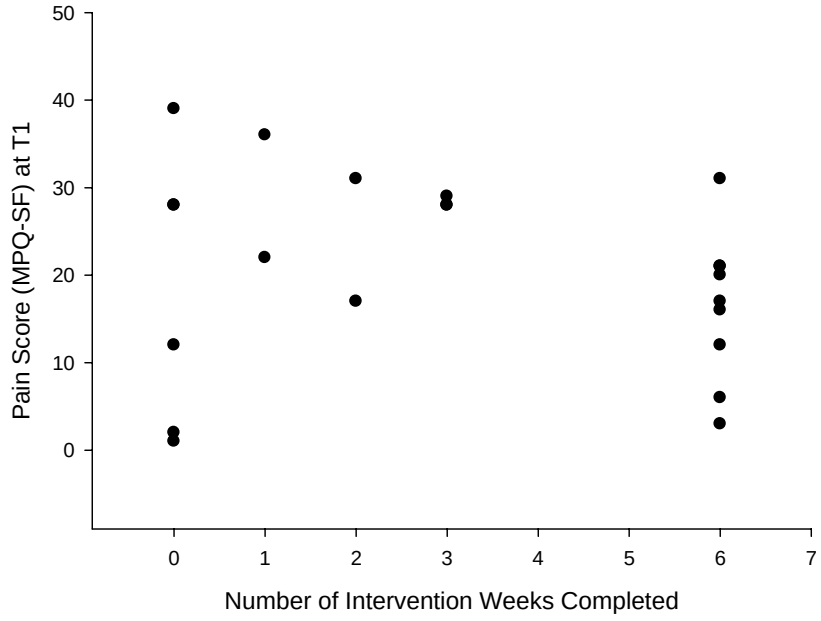

Figure 28. Participants' individual initial pain scores (MPQ-SF) at T1 and their corresponding number of active-intervention weeks completed.

Discussion

The aim of this study was to examine the effectiveness of the bibliotherapy intervention developed by Dahl and Lundgren (2006). The overarching hypothesis was that utilising the book would add value to the lives of people who experienced chronic pain. More detailed hypotheses were that utilising the self-help book would lead to increased acceptance, and improvements in quality of life and reduction in symptoms of depression and anxiety.

The results of this study have indicated that utilising the self-help intervention added value to the lives of participants with chronic pain. The intervention added more value in some of the domains measured than in others but all measures for the original intervention group showed change either in the direction that was hypothesised or in a direction adding value to their lives. This trend was also seen in the c-t group, with the exception of one participant whose scores for depression anxiety increased and acceptance decreased.

Specifically, the strongest finding of the present study was that those who participated in the intervention reported significant increases in their level of acceptance on completion (or partial completion) of the treatment. This finding was supported at all levels of analysis (original group comparisons, c-t group analysis and pooled data analysis). The next most significant finding was that for those who participated in the intervention, their self reports of quality of life had improved at the final assessment. This finding held in original group comparisons and pooled data analysis.

In terms of mood, the present findings suggest that using the self-help intervention may sometimes add value. The mood measures of anxiety and depression were secondary dependant variables measured in this study. Of these

secondary dependant variables (anxiety, depression, values illness, and pain), the results showed that anxiety, depression and pain were not significantly altered over the time that participants utilised the self-help book. This finding held in the original group comparisons and also once the data was pooled. The pooled data revealed a statistically significant change in values illness (CPVI) scores for those who used the self-help book. Similarly, the findings for satisfaction with life were not significant until the pooled data were analysed.

In line with other research (Cuijpers, 1997), the attrition rate was high for participation in the treatment. These findings will now be discussed in more detail and with relevance to the literature.

Acceptance

At both the group and individual level, data indicated the participants' levels of acceptance had increased after working through the book. These findings for acceptance make sense when the content of the self-help book is considered. The book incorporates material designed to promote acceptance, commitment, and taking action. The content of the book is delivered from a context of acceptance where change is not the purpose, but rather a reduction of avoidance behaviour is. A feature of acceptance is a willingness to engage in daily activities. Experiential learning exercises are included in the self-help book and require that the reader acknowledge their pain and allow it to exist rather than try to stop or escape it. By undermining fear and avoidance behaviour, the book indirectly addresses negative attributions and catastrophising cognitive styles, by encouraging the reader to practice exposure and to assess the reality of their associated outcomes.

Previous research has indicated that in comparison to control strategies,

acceptance can help to increase pain tolerance by undermining the impact that thoughts and feelings may have on avoidance behaviour (Gutierrez, Luciano, Rodriguez, & Brandi, 2004; Hayes, et al., 1999). These findings support the approach taken by Dahl and Lundgren (2006) in self-help book approach which suggests that acceptance can support behaviour change when feelings of pain are not reduced. In a study that included 160 people with chronic pain, McCracken (1998) found that greater acceptance was associated with less pain, anxiety, avoidance, depression and disability. The McCracken (1998) study further demonstrated that acceptance was a reliable predictor of functioning irrespective of self reported pain levels. These findings have been replicated more recently (McCracken et al., 2004; McCracken et al., 2005) and include evidence of higher activity levels despite pain. The self-help by Dahl and Lundgren (2006) also promotes this notion.

Many of the participants who engaged with the self-help book also reported increased activity level. These findings match the thrust of *Living Beyond Your Pain* which emphasises engaging in personally rewarding activities, despite pain. The authors state clearly that utilising the book will not necessarily reduce pain. This is supported by the finding of the present study. Also in line with the book, participants reported adjustments in the way they responded to pain – their pain behaviour. Many of the participants commented on the usefulness of the distinction between clean pain (actual pain sensation) and dirty pain (suffering in response to pain). Again, the emphasis here was about behaviour in response to pain rather than focussing on reducing or controlling pain. Increasing activity level was also effective in reducing avoidance behaviour and some aspects of disability for many of the participants that engaged with the book. The exercises

in the book gave participants the opportunity to challenge expectancy outcome beliefs and to increase self efficacy. There was evidence that some participants experienced change in these areas. Two participants reported experiencing changes in 'thinking,' making reference to less negative content in their thoughts, and more non-judgemental observation of pain related cognitions.

Mindfulness techniques are considered a form of acceptance and are included in the self-help book. By observing ones experience (such as pain) in the present moment, and with out judgement, mindfulness is aimed to reduce added meaning and catastrophising in response to ones experience. In this light mindfulness can help to reduce fear and avoidance of pain sensations (McCracken, 2005). Studies with chronic pain populations, based on Mindfulness-Based Stress Reduction (Kabat-Zinn et al., 1985) have demonstrated large reductions in reported pain, increased activity and improvement in mood. Apart from pain scores, these findings were maintained at 15-month follow up. As in the present study, the participants in the research by Kabat-Zinn and colleagues (1985) reported that although their pain had remained to varying degrees, the role of pain and its influence on their activity levels had changed. In the present study, all original treatment participants reported finding the mindfulness component of the book either very useful or of medium usefulness. Acceptance-based treatments for depression have also been supported by randomised trials (Teasdale et al., 2002; Zettle & Rains, 1989 (as cited in McCracken, Carson, Eccleston & Keefe, 2004)), and the relevance of acceptance in the treatment of chronic pain is further supported given the frequent occurrence of chronic pain and depression.

Another factor that may have contributed to the strength of the finding for

acceptance was the alignment of the CPAQ with the self-help book. For example, the measure and the book were both written specifically for a chronic pain population by authors who are operating from an ACT orientation, with extensive experience in the field of chronic pain. The questions in the CPAQ refer directly to the content of the book which is likely to have increased the sensitivity of the measure and clearly reflected the message received by the reader.

Mood

For the present study, mood was measured as a factor contributing to 'adding value.' Anxiety and depression were not primary dependant variables in this study, but the IMMPACT recommendations for clinical trials with chronic pain populations (Dworkin et al., 2005), include emotional functioning as a core outcome measure to be considered when conducting research in this area. In terms of the overall group analysis conducted for this study, mood as measured by the CMDI and the BAI, improved but not to a statistically significant degree for participants who engaged in the intervention. In comparison, overall control group mood scores remained constant. Effect sizes for the magnitude of change for anxiety and depression were also minimal. One explanation for these findings is based on an ACT approach which emphasises the relationship an individual has with their problem (e.g., pain). ACT research has often indicated more change in terms of the way individuals' respond to their problems, rather than the actual removal of the problem. For example, previous research examining the utility of ACT with psychosis, found that clients did not experience reductions of auditory hallucinations, but did experience reductions in the believablity of their hallucinations (Bach & Hayes, 2002). Later ACT research shows a similar pattern with no reduction in frequency or severity of psychotic symptoms but

improvements in affective severity, global improvement, distress and social functioning (Gaudiano & Herbert, 2005). Both of these studies found reductions in re-hospitalisation rates for clients who had participated in ACT treatment in comparison to those who participated in treatment as usual.

Individual data for mood showed variation in terms of change and overall showed that 55% of participants who completed the self-help intervention experienced decreases in anxiety and depression, and that 45% showed increases on these measures. Mood scores for Participant 4 indicated that both anxiety and depression had reduced post treatment. This participant reported gaining significantly from the intervention and acknowledged changes in thinking and behaviour as a result of utilising the self-help book with support. Individual data for Participant 10 illustrated a decrease in anxiety score and an increase in depression score at post treatment. The scores for these measures were within the low range at initial and final testing. An explanation for the increase in depression score in this case could be based on the participant's father becoming seriously ill and hospitalised at the time of final assessment. Similar to Participant 10, individual mood scores for Participant 12 were low at the first and final administrations of the psychometrics. The changes in scores indicated a slight reduction in anxiety and an increase in depression score at post treatment assessment. This participant reported that chronic pain was no longer a problem for her and that she was conducting her life as she wished. This information and the data from Participant 10 suggest that for these participants, mood was not problematic prior to involvement with the intervention, or on completion of it. It is most likely in these cases that utilising the self-help book did not influence mood in any considerable way. Individual data for Participant 5c-t showed

minimal positive change across all measures. This participant verbally reported excruciating pain and a high level of associated disability. These reports, and the outcome data for this participant, support the argument that as pain intensity rises, the use of active coping skills becomes increasingly difficult (Jensen & Karoly, 1991). Overall the present findings support the argument that mood may improve by utilising the self-help intervention but that there may be differences between changes in anxiety and depression, and both of these factors may not actually change as a result of using the book.

There was some confusion with utilising the BAI relating to the overlap between participant perceptions of whether symptoms related to anxiety or pain and/or medications. Many of the participants reported specific sensations such as 'tingling' and 'numbness' in relation to pain rather than anxiety. This may have contributed to a decrease in accuracy in terms of analysing the degree of anxiety that individuals experienced.

Thus in the context of treating chronic pain using the self-help book, there is little support for its ability to improve depression and anxiety. This is in contrast to recent research which has demonstrated the effectiveness of ACT in the treatment of anxiety and depression (Forman, Herbert, Moitra, Yeomans & Geller, 2007). In a randomised control trial, Forman and colleagues (2007) found that ACT was equally as effective as cognitive therapy in the treatment of depression and anxiety. This study included 101 clinically depressed and/or anxious clients from an outpatient clinic and the ACT components were similar to those outlined in the Dahl and Lundgren (2006) book. The findings of the Forman study, suggested that despite the distinctly different processes utilised by the therapeutic approaches, the rate and level of client's improvement was equal

for both types of treatment. For anxiety and depressive symptoms, quality of life and satisfaction with life, significant treatment related improvements for both therapeutic modalities were found. The inclusion criteria and the findings of the Forman et al. (2007) study supports the earlier suggestion that ACT interventions may provide a more obvious influence on mood when pre-morbid mood levels are problematic.

Earlier research has investigated cognitive distancing in the treatment of depression (Zettle & Rains, 1989). Cognitive distancing (CD) is a therapeutic approach that is now referred to in current ACT language (and in the self-help book), as *cognitive defusion*. The aim of CD is to change the function, but not the content of ones negative self talk. This requires learning how to observe thoughts as thoughts, and to see the impact they can have on behaviour. A key skill in this process is learning to identify that a thought may not be literally true, and is in fact just words. In the Zettle and Rains (1989) study, CD was found to be as effective as Cognitive Therapy and partial Cognitive Therapy for the treatment of depression. Although again, this study required a clinical level of pre-treatment depression, the findings support the notion that a CD/cognitive defusion – ACT approach might be useful with more severe depression.

Currently, there is little validated outcome research on ACT for anxiety. In a study comparing ACT with systematic desensitisation for mathematics anxiety, Zettle (2003) found statistically and clinically significant improvements in mathematics anxiety for both treatment approaches. A recent pilot study by Dalrymple and Herbert (2007) conducted a pre post analysis of an ACT-based treatment. There was no control group for this study but a 4-week baseline was established so that a comparison could be made with this period. The results of

the study indicated significant improvement in social phobia, anxiety, fear of negative evaluation, disability, quality of life, acceptance, anxiety control, valued living and global improvement. Unlike the results of the current research, these other findings and additional case studies document the possible utility of ACT for the treatment of anxiety (Orsillo, Roemer & Barlow, 2003).

Quality of Life and Satisfaction with Life

The overall findings for quality of life suggest that in comparison to controls, using the self-help intervention was associated with improved quality of life. A large effect size was found for the main intervention effect, indicating a strong degree of change experienced by those who participated in the self-help intervention. Individual data also support this finding and in all cases of completed results, QOLI scores increased (to varying degrees) at post assessment. Where the increases were less dramatic, it should be noted that those corresponding pre-test QOLI scores were high. This indicates a ceiling effect for those participants who had a high level of pre-morbid functioning in relation to quality of life. This finding partly explains why the degree of change was not large for these participants.

These present findings for quality of life fit with an ACT approach which is aimed to increase acceptance and behaviour that is aligned to ones values. If an individual is able to increase the amount of positive reinforcement they receive from their environment, by living by what they care deeply about, it would be expected that their subjective evaluation of their experience (quality of life) would improve. In terms of measuring quality of life, the QOLI questionnaire included similar, but a more expansive list of dimensions as the CPVI. These measures fitted together well and were both aligned to the values work included in the self-

help intervention.

In contrast to the findings for quality of life, initial analysis revealed no statistically significant change in satisfaction with life scores on completion of the intervention. However, the pooled data showed that satisfaction with life improved for participants' once they had worked through the self-help book. The most obvious explanation for the non-significant initial result is due to the small sample size of the original treatment group. Another explanation may involve the design of the measure in comparison to the QOLI. The SWLS is a short questionnaire that includes five brief global statements such as "the conditions of my life are excellent" and "so far I have got the important things I want in life." In comparison to the QOLI, the SWLS is less specific and may not account for more recent and more flexible aspects of change. It is possible that while many aspects of an individual's outlook may have changed and new skills may have been acquired, that the ratings assigned to global statements included in the SWLS might remain fairly stable. Utilising the self-help workbook will not remove people's pain but will help them to change their relationship with pain. Participants' day to day satisfaction may have changed but their perception of satisfaction in relation to their whole life experience so far may not have changed a lot. Despite both being measures of subjective well-being and both measures showing improvement for participants in the study, the difference between the SWLS and QOLI actual measures may have contributed to a weaker statistical finding for satisfaction with life in comparison to the QOLI. McAlinden and Oei (2006) have suggested that in the field of psychology, measurements of quality of life and satisfaction with life are most reliable when are in multiple item format rather than as global singular statements/items. One reason for this is that clients

are not required to integrate all aspects of their satisfaction into one answer. Other considerations include the ability to calculate reliability and error across multiple items.

In their argument for the psychometric properties of the QOLI, McAlinden and Oei (2006) present three studies that measured quality of life with the QOLI in conjunction with depression and anxiety among clients who participated in CBT. McAlinden and Oei (2006) suggest that in general, treatment related change was associated with increased quality of life, reflecting the amelioration of client's symptoms. Furthermore, McAlinden and Oei (2006) reported that the consistency between QOLI scores and other psychopathology measurement scores remained at one month and one year follow up. On one hand this is different from the present study, where there was not significant consistency between the psychopathology measures of depression and anxiety and quality of life. On the other hand, symptom reduction was not the aim of the intervention and significant improvement was not shown, which may suggest that in the present study, treatment related change that did relate to quality of life, was not based around perception of pain.

Previous research has demonstrated increases in quality of life associated with treatment approaches to chronic pain and supports the utility of the QOLI for chronic pain populations. In a controlled study that compared multidisciplinary treatment with standard primary care treatment, Grahn, Ekdahl and Borguist (2000) found that health related quality of life improved in both groups but to a greater extent for those under multidisciplinary care. In a study of CBT for generalised anxiety in an elderly population, Stanley, et al. (2003) compared the efficacy of manualised CBT with a minimal contact control group. Their minimal

contact group was subjected to similar conditions to the present study control group. They received weekly phone calls to establish symptom severity ratings with minimal interaction. In terms of evaluating efficacy, anxiety, worry, depression and quality of life measures and clinician ratings were used. The QOLI was used in the Stanley et al. (2003) study which found significant improvement relating to group and time in the domains of worry, anxiety, depression and quality of life.

Eng, Coles, Heimberg and Safren (2001) analysed the effect of group CBT on quality of life ratings for 25 individuals with social phobia. In contrast to the present study findings, Eng et al. (2001) found that QOLI scores correlated significantly with depression scores at pre and post treatment and at follow up. Eng and colleagues (2001) concluded that group CBT for social phobia led to significant and durable improvement in life satisfaction. Despite the present findings for mood,these findings emphasise the importance of the role of emotional and social factors in perceptions of quality of life and supports their inclusion as part of multidisciplinary or other treatment approaches to chronic pain.

Pain

The present research did demonstrate reduction of self reported pain for the intervention group on completion, but the change was not statistically significant. Because the book emphasised an acceptance approach and made explicit statements about not removing pain, it was not expected that pain would change as an outcome of this study. The statistical results support this hypothesis despite the fact that 55% of participants who read the book reported decreased pain levels on completion of the intervention. Baer (2007) outlines the current

evidence for the use of mindfulness in the treatment of chronic pain. Although the scientific evidence base for mindfulness interventions is still developing, uncontrolled mindfulness research has also indicated correlations between utilising mindfulness techniques with reductions in pain (McCracken, Gauntlett-Gilbert & Vowles, 2007).

However, it is possible that the changes in the present study differ from some previous mindfulness findings because the present self-help intervention is multifaceted and mindfulness is one chapter from an eight chapter book. Although there is overlap in the content within chapters, mindfulness is referred to in the book as a strategy, incorporated the overall ACT approach. Also, although in general both the book and mindfulness approaches do not advocate pain reduction as an aim, the book specifically acknowledges that participants' pain probably won't reduce. These differences point to the fact that although there are similarities in techniques and concepts, a direct comparison of 'mindfulness' with the self-help book is not appropriate.

Another factor may be that due to the statistical analyses in the present study, the results may have less weight than differently designed research. For example, multiple case design may have resulted in a different finding in relation to the effect of the book on pain.

In the present study there were problems administering the visual analogue scale for the MPQ-SF. This was firstly due to confusion on the researcher's part re global rating of pain severity and present pain intensity. Secondly, and as reported by the Initiative on Methods, Measurement and Pain Assessment in Clinical Trials (IMMPACT) recommendations (Dworkin et al., 2005), the visual analogue scale (VAS) was often omitted or not filled out correctly by participants.

Due to these factors, only the main score of the MPQ-SF and the Present Pain Intensity rating were utilised in the analysis of participants' pain data. This problem with using the VAS may have limited the information garnered from participants' about the effect that the book had on their pain.

Values Illness

According to McCracken and Yang (2006) acceptance weakens the link between pain and its influence on activity level and values-based strategies strengthen the influence of values as guides for adaptive and personally meaningful behaviour. The self-help intervention addresses both of these components and development of personal values is central to the entire approach of the book. Values illness is measured as part of one of the exercises in the book, but was also measured by the CPVI as part of the present study. It was expected that in conjunction with an increase in acceptance, values illness would decrease for participants who engaged in using the self-help book. The results showed that values illness did decrease for the intervention group but remained stable for the control group, but again this decrease was not statistically significant at the initial analysis. Once the original treatment group data was pooled however, the change in acceptance scores was statistically significant. The individual data presented in the results section also illustrate reductions in values illness for all participants who completed the intervention. In addition to this information, one of the participants who withdrew from the intervention after Week 3 reported that the values work was the part she liked most about the book and that she had benefited from it in more ways than just her experiences of pain. These findings support McCracken's (2005) proposition that values-based methods may be a useful addition to treatments of chronic pain.

Similar to the acceptance component of the book, values was a central theme and key area of work in the self-help book. Acceptance and living in alignment with ones values is in short the main thrust of the book. For these reasons it was expected that values illness would decline over the intervention period. Exercises in the book included setting actions that are aligned to one's personal values, and working with barriers that may prevent such actions.

Utility for the Waikato Hospital Pain Clinic

One of the main questions particularly relevant for the Pain Clinic was "who would benefit from using the book?" This question goes beyond, "was the intervention effective?," and points to factors such as who benefited and why. The next section will address these factors based on a combination of psychometric results, individual comments and observations made by the researcher.

Firstly, it is clear that the book requires a high level of reading ability and a similar level of meta-cognitive and reflective skills to understand the concepts and analyse one's own individual behaviour in relation to the concepts put forward in the book. The majority of participants reported that the weekly reading level was either medium or hard. During the weekly phone calls the majority of participants struggled at least once with understanding some of the concepts that were explained in the book. This was reflected in the answers provided for the weekly questions in the workbook. Comprehension scores for Week 3 (cognitive defusion) and 4 (mindfulness) were generally lower for all participants. These findings are understandable when the intervention content for those weeks is examined. Week 3 included the concept of cognitive defusion and required the reader to practice cognitive defusion. Cognitive defusion involves observing ones

cognitions and developing the ability to see the meaning and any subsequent behaviour as ones own creations. Many of the participants indicated that they did not understand the concept presented in Week 3, to the effect that reasons can be like verbal rules which may not be true or helpful. Building on these concepts, Week four included practicing mindfulness and observing thought content without judgement. Interestingly, the difficulty experienced by many participants in Week 4 did not influence perceived usefulness for Week 4. Despite the reported difficulty with Week 4, none of the original participants reported that the reading and activities were not useful for this week. Compared with the amount of reading completed for other weeks, Week 4 was associated with a lesser amount completed. This may been influenced by the difficulty participants experienced with the mindfulness exercices included in Week 4's corresponding chapter. For the Pain Clinic's future use of the book it is advised that these areas of increased difficulty are kept in mind. It may be appropriate to provide additional support relating to the comprehension of cognitive defusion and mindfulness.

Problems with comprehension gave rise to one of the problems with the study – that the researcher was conducting the intervention and sometimes the role may have been blurred. For example, when a participant was unsure of a concept was it the researcher's role to correct the understanding? On one hand, that was the purpose of the phone call, but on the other hand the study was evaluating individuals understanding of and value gained from using the book. Being the weekly support person and the evaluator of participant's answers to questions required two roles but may also have been a source of bias. The present study findings support the recommendation that telephone support be given to people using the book, but it is advised that the role of the support person be clear.

Psychometric results indicate that those who were previously better adjusted to having pain and were functioning more adaptively were more able to engage with the book and continue with it. In general all participants' first self reports of quality of life were low but for some of those who withdrew from the study their quality of life scores were even lower than those who persevered with the book. For example of the 7 people who withdrew (or did not start) from the original treatment group, 5 reported low or very low quality of life and 1 reported average quality of life. Among this group, the majority of the participants also reported high levels of anxiety and/or depression at the initial assessment. It appeared that those who were more disabled by pain or who had more chaos in their lives tended to be less able to complete the intervention. As reported in the results section, high levels of pain at TI were associated with less completion of the weekly requirements, which fits with the research suggesting that perceived level of pain impacts on the ability to use active coping strategies (Jensen & Karoly, 1991). Furthermore, of the 7 participants who withdrew (or did not start the intervention) from the original treatment group, 5 of them reported that they had too much going on in their lives to manage taking part in the treatment. However, that is not to say that those who started did not benefit from the intervention. In some cases participants did not complete the intervention but they reported making and their psychometric results also showed improvement. For example, one participant who withdrew due to stressful life circumstances showed a decrease in values illness after three weeks of reading the book. Her test score for values illness decreased from 18 at pre treatment, to 2 after her three weeks of participation. Her quality of life and satisfaction with life scores also showed substantial improvement over the same time period. This outcome supports the

suggestion that for the Waikato Hospital Pain Clinic, the values chapter from the self-help book may be a useful intervention to be used separate from the other chapters but in the context of other treatment strategies. Another participant who withdrew after three weeks reported already living as the book suggests. Despite these comments, this participant's scores for acceptance and satisfaction with life had increased considerably after three weeks. These findings suggest that despite the fact that increases in individual pain intensity and/or stressful life circumstances may jeopardize participation in a self-help intervention, even limited participation may prove beneficial. It is hoped that these findings will provide useful information for the Waikato Hospital Pain Clinic Psychologists regarding circumstances that may enhance or impede engagement with the self-help intervention.

About the Book

Overall the majority of participants who started the self-help book read all or some of the weekly requirements. Individual ratings for usefulness of weekly content varied. Overall responses showed that Weeks 2, 4, 5, and 6 were considered somewhat or very useful by participants. One main theme was that there were a high proportion of people who found Week 3 not useful. The content of the book for this week was cognitive defusion and this finding fits with reports of difficulty with comprehension of the material covered in Week 3. In general participants found the mindfulness component useful but hard and they were less likely to complete all the exercises in this section compared with the other parts of the book. Approximately half the participants found Weeks 4-6 more useful than the earlier weeks of the intervention. It may have been that these participants preferred the more practical and applied exercises rather than the more conceptual

content included in the earlier weeks. Participants who started the intervention later showed less of a preference regarding usefulness for Weeks 4-6. It is possible that these differences might relate to the small number of participants and the influence of individual differences within the small sample size. Another factor worth consideration relates to the length of time the later-starting participants' were involved in the study. It is possible that as a result of completing an initial control period, followed by the intervention (and all involving weekly phone calls), that interest and/or enthusiasm may have dropped off during the latter weeks of the intervention period for the c-t participants.

Overall, it is encouraging that the main components of the book that were measured in the present study (acceptance and values illness) were associated with statistically significant positive change. In keeping with these findings, the outcomes for quality of life and satisfaction with life are also positive and support the argument that ACT techniques can be utilised to change emphasis from pain and suffering toward context and fulfilment from life.

Strengths

A first strength associated with the study was that the book is consistent with a multi-disciplinary treatment approach in that it includes a range of strategies applied to psychosocial and physical life domains. In this way, participants were not new to some of the ideas about exercise and activity. Another strength of the study was the flexibility offered to individuals to participate. Participants did not have to travel or wait, and were able to work through the book at their own pace with support. Two of the participants made direct comments about the benefits of being able to work through the book with support. Three participants also commented that their desire to 'not let the

researcher down,' was a motivating factor to complete the intervention. These comments support the involvement of a therapist as part of the intervention conditions. Overall, the intervention made the material accessible to a group who may not have otherwise sought out the self-help book. The intervention also provided some clients who were waiting to see a Pain Clinic Psychologist with strategies to use while they waited which not only assisted them but added value in terms of preparation for the work they later completed with the Pain Clinic Psychologist. This was similar to a 'stepped care' model of treatment of depression, where the least invasive treatment option is offered first (Gregory, Canning, Lee & Wise, 2004). The positive outcomes of the present research support the statement made earlier that alternative formats for psychological intervention are needed.

Weaknesses

The present study utilised a small sample and included a high proportion of participants who either did not start or withdrew from the intervention. This meant that the statistical analyses originally planned may not have in fact been most appropriate and may have failed to capture the full effects of the intervention. Previous correlational research has outlined that self-help success is associated with personality characteristics such as being realistic, investigative, or conventional. High self efficacy and internal locus of control are also factors that have been reported to be associated with lowered depression score and satisfaction with bibliotherapy (Hadjistavropoulos & Shymkiw, 2007; Mahalik & Kivlighan, 1988). Readiness to change and self manage pain are factors that may have influenced drop out rate (and motivation to complete) in the present study (Hadjistavropoulos & Shymkiw, 2007; Heapy et al., 2005). The drop out rate for

the present study's original treatment group was 33% which is consistent with attrition rates reported (but at the lower end) for other bibliotherapy interventions that have been researched. The percentage of participants who did not start the intervention was 25% Rates of attrition vary across studies and are likely to depend on the nature of the problem, but appear to range between 38% and 67% (Andersson, et al., 2006; Cuijpers, 1997; Mahalik & Kivlighan, 1988). One of the participants that withdrew from the present study expressed that their reason for withdrawal was 'not being ready' to make the changes advocated by the book. For the reasons outlined, readiness to change and self efficacy may have been useful measures to have included in the battery of tests utilised in the study.

Conclusion

In summary, this research has demonstrated the utility of the self-help intervention by Dahl and Lundgren (2006) in a population of people who experience chronic pain. The strongest findings in support of the intervention were for participants' changes in acceptance and quality of life on completion of the self-help book. Values illness and satisfaction with life were also found to improve in conjunction with using the bibliotherapy intervention. The hypothesis that the intervention would lead to improved mood was not supported and pain levels did not alter significantly in response to the intervention. As documented in the bibliotherapy research, there was quite a high drop out rate in the present study. However, gains were made for those that engaged with the book and persevered with it.

This research has provided information about the participant's perceptions of the book and the parts they liked least and most. This study also examined participant perceptions of use, reading level and tested for comprehension of the

material on a weekly basis. This information will hopefully be of use to the authors of the self-help book and to the Waikato Hospital Pain Clinic. Via this process, use of the book with support and the information garnered from this study, may provide an additional, cost-effective intervention for people with chronic pain.

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Appendix One

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THE UNIVERSITY OF WAIKATO
Te Whare Wānanga o Waikato

Self Help Intervention for Chronic Pain Information Sheet

Contact: Marnie Johnston, Department of Psychology, University of Waikato
Telephone:
Email

Supervisors: Prof Mary Foster & Dr Nicola Starkey (University of Waikato)
Jeanette Shennan, Pain Clinic, Waikato Hospital

What is this study about?
You are invited to participate in a research project to evaluate the use of a self-help workbook used for chronic pain. Participation is voluntary. The reason for the study is to see if the book may be helpful for people who suffer with chronic pain. This is especially relevant for people who may have to wait on the Pain Clinic waitlist to see the psychologist.

What is involved?
If you agree to take part in this research you will meet individually with the principle investigator two or three times (depending on whether you are assigned to the intervention group or control group to start with). Each visit will take approximately 1.5 hours. You can be seen either at the Pain Clinic or it can be arranged to visit you in your own home. We will reimburse your travel and parking costs for these additional appointments.

The two main meetings will be an introduction and a conclusion for the intervention. At each meeting you will fill out some questionnaires which ask you to rate your pain and various other areas of life. Some participants will make up a control group and will start the intervention at a later date. Control group participants will also complete questionnaires after their initial wait (of approximately eight weeks). During the intervention period and over an eight week period you will be required to read through and do some written activities from the self-help book. This is expected to take no more than two hours per week. During the eight weeks you will be phoned weekly by one of the researchers to catch up on how you are going. The control group will also be phoned weekly, over the period they wait to start the intervention.

What will happen to my information?
The information you provide will remain completely confidential. Numbers will be used so you will not be identifiable in the use of the information. Completed questionnaires will be stored in a locked cabinet in the Psychology Department at Waikato University and will be destroyed when the project has been completed. At your request you will be sent a summary of the findings at the end of the study.

Your rights
If you choose to participate in the study the researchers will respect your rights to:

- Ask any questions about the study at any time
- Decline to answer any questions
- Withdraw from the study at any time
- Be provided with information to ensure you will not be identified in the study findings
- Be given a summary of the findings
- Choose to participate or withdraw from the study without prejudicing your right to standard health care through the hospital in any way

If you have any queries or concerns regarding your rights as a participant in this study you may wish to contact an independent Health and Disability Advocate, telephone 0800 423 638.

This study has received ethical approval from the Northern-Y Ethics committee and from the University of Waikato Psychology Department.

ACC

In the unlikely event of a physical injury as a result of your participation in this study, you may be covered by ACC under the Injury Prevention, Rehabilitation and compensation Act. ACC cover is not automatic and your case will need to be assessed by ACC according to the provisions off the 2002 Injury Prevention Rehabilitation and Compensation Act. If your claim is accepted by ACC, you still might not get any compensation. This depends on a number of factors such as whether you are an earner or non-earner. ACC usually provides only partial reimbursement of costs and expenses and there may be no lump sum compensation payable. There is no cover for mental injury unless it is a result of physical injury. If you have ACC cover, generally this will affect your right to sue the investigators. If you have any questions about ACC, contact your nearest ACC office or the investigator.

If you are interested to take part in this research (or have any further questions) please contact Marnie Johnston. Thank you.

Appendix Two

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Hamilton, New Zealand

THE UNIVERSITY OF WAIKATO
Te Whare Wānanga o Waikato

University of Waikato
Psychology Department

CONSENT FORM

Research Project: ACT for Chronic Pain

Name of Researcher: Marnie Johnston

Name of Supervisors: Mary Foster, Nicola Starkey, Jeannette Shennan

I have received an information sheet about this research project or the researcher has explained the study to me. I understand that I will start the intervention in either the control or intervention groups. I have had the chance to ask any questions and discuss my participation with other people. Any questions have been answered to my satisfaction.

I agree to participate in this research project and I understand that I may withdraw at any time.

I give consent for the principle investigator to contact my General Practitioner (GP) if there are concerns about my health during my participation. I also give consent for my GP to be sent a letter outlining my participation in this research.

Participant's Name:_____ Signature: _____ Date: _____

Researcher's Name: _____ Signature: _____ Date: _____

Appendix Three

Living Beyond Your Pain:

Using Acceptance & Commitment Therapy to Ease Chronic Pain

ACT Intervention Workbook
2007

Compiled by:
Marnie Johnston

Supervisors:
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This workbook is based on the self-help publication by Dahl and Lundgren (2006). The exercises are directly from the self-help book.

INTRODUCTION

Enclosed is the material you need to participate in this study. The study will take seven weeks to complete and each week you are required to:

- Read the specified part of the book.
- Do the exercises in that section (the exercises that are in the book are also provided here so you can fill them in – or if you would like extra copies of these please contact me).
- Answer questions to help me evaluate the book during a weekly phone call with me.

The exercises and evaluation questions are attached and are in the order that you are required to complete or look at them.

The research has been designed to allow you to work through the book and complete the exercises at a steady pace. I will phone you once a week to answer any questions and to see how you are going with the book and exercises. The evaluation questions will be discussed on the phone. The questions are to prompt discussion about how you are finding the book. It is not a test!!

The exercises and the questions I will use to evaluate the book are attached.

The weekly time that we have arranged for you to be phoned is:

(Time): _____ on (day):_____

Here is a list of the weekly reading:

Week No.	Start Date	Required reading (book Chapters)	Tick as complete
1		Intro, 1 & 2	
2		3	
3		4	
4		5	
5		6 & up to page 136 of Chapter 7	
6		from 136 of Chapter 7 & Chapter 8	
7		Final meet with me	

At the last meeting I will need the book returned, but you can keep this handbook.

The agreed date for the final meeting is day: _____ month _____ ’07.

WEEK 1. What is pain? What is ACT?

Reading: Introduction and Chapters 1 & 2.

Introduction

The introduction points out that as pain gets bigger and bigger, life often gets smaller and smaller and becomes about trying to keep pain at bay. The authors use the 'quicksand' metaphor to illustrate a scenario of struggling against pain but sinking further and further under. The authors suggest changing how you see and deal with your pain – working with it rather than against it. This means that if we apply the ideas in ACT to our lives, pain is not removed; rather, changes are made in our lives.

The aims of the book are:

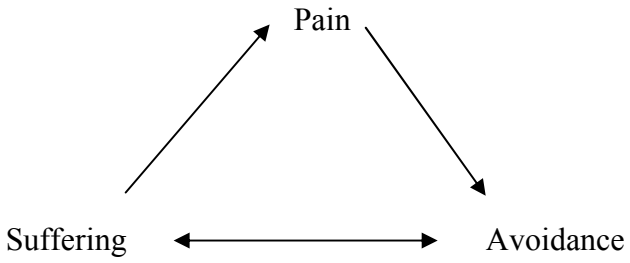
- To get you out of the quicksand/struggle and to help you live a life you want to live.
- To eliminate suffering.
- To change your perspective on pain.

These sections point out that the main ideas of ACT are:

1. To accept the aspects of your pain that you cannot change, including all the difficult thoughts, feelings and bodily sensations that come with it.

2. This acceptance then allows you to commit to actions that make you feel vital and energized.

These sections introduce the pain – avoidance – suffering cycle:



Pain signals to get our attention. In this way pain is helpful. We are conditioned to believe that we must avoid experiences of pain, but in reality avoiding pain creates more pain. Increased pain often leads to us limiting what we do –

constraining our lives and leading to situations that are unfulfilling and in which we are unhappy. This pain caused by pain is suffering.

For people with chronic pain, suffering usually follows a sequence of these four steps:

1. Your actual physical pain sensation
2. The way your mind reacts to this pain.
3. Avoidance or escape behaviours based on what your mind says.
4. Long-term choices based on avoidance and escape behaviours.

The authors refer to this as the **pain chain**.

Clean and dirty pain

Clean pain is the simple immediate physical sensation that indicates something is wrong. Dirty pain is our response to the pain – mostly what your mind tells you about your pain. Clean pain cannot really be controlled but dirty pain can. All traditional pain management approaches emphasis controlling clean pain and allowing dirty pain to escalate. ACT is a different way of approaching pain. Eric's story on page 30 illustrates these two types of pain.

Creative hopelessness

Control of pain is not the answer. Creative hopelessness is about letting go of the control and creating a space for new possibilities to change your life.
Letting go of control may evoke feelings of grief and emptiness but it might also provide the opportunity for hope. It's not about 'beating' pain or about giving up. Rather, it is about acceptance and looking at alternative solutions.

EXERCISE: YOUR EXPERIENCE WITH PAIN MANAGEMENT

Use the table below to reflect on the pain management strategies you have tried. Refer to Beth's example on page 16.

Type of pain treatment	Short-term effects on pain	Long-term effects on pain	Long-term effects on quality of life

How many of these pain avoidance strategies have forced you to constrain yourself in some way?

_____

EXERCISE: YOUR EXAMPLES OF TYPES OF DIRTY PAIN

Mental script
(e.g. reasons for pain, yelling epithets at yourself, reciting rules)

Avoidance behaviours
(e.g. refusing to engage in certain behaviours, dissociating from yourself)

Values illness …more on this in later chapters.
(e.g. quitting something because of pain or making decisions based on pain)

EXERCISE: CLEAN AND DIRTY PAIN DIARY

Here a pain diary for you to fill out. Refer to Eric's pain diary on page 33.

	Clean Pain		Dirty Pain	
Situation	Pain description	level	Pain description	level

WEEK 1. What is pain? What is ACT?

Reading: Introduction and chapters 1 & 2.

1. What are the main points of the introduction?

2. Does the statement below apply for you?

   "You used to live a life that you loved. Now your life is devoted to trying to keep the pain at bay."

3. Can you relate to the quicksand metaphor (*the more you fight against it the more it takes your life away*)?

4. What are the two main concepts of ACT described on page 3?

5. Will using this workbook remove your pain?

6. What is the aim of the book?

7. What is the pain – avoidance – suffering cycle?

8. What is the difference between pain and suffering?

9. What is the difference between clean and dirty pain?

10. What is the pain chain?

11. What is your understanding of creative hopelessness?

WEEK 2. What do you value?

Reading: Chapter 3

The chapter addresses the question: *If I don't attempt to control my pain then what do I do?*

Values

The answer to this question lies with what you value. Chapter three is about exploring your values. If you ask yourself what would you do with your life if you were pain free, what is your answer?

Reasons and choices

As human beings we use language. Part of our use of language consists of rule making. We learn about how to behave based on rules.

For example we know we should not do certain things based on being told not to, rather than through direct experiences.

A problem with rules though is that we also tend to fall into traps with rules we create for ourselves. We develop rules that restrict our lives and reduce our fulfilment.

An example of this kind of rule is "I can do _____ when I am pain free." This is where reasons can be like rules.

When you make choices based on your values, you are not looking at the rules you have.

- Values are what bring meaning to your life. Anything that you care about deeply is a reflection of your values.
- Values steer your life in the way you want to go similar to the way a compass points you in a direction.
- Values are different from goals.
- Goals are practical, obtainable outcomes that can lead you down your valued life path.
- Goals are part of your plan for living a valued life.
- Goals are achievable whereas values are not a 'thing' that you achieve. Rather they are a way of living – a sense of what you are about.

Exploring your values

The next exercise is an exploration of what you care deeply about. It is not a record of how things are now. It is creating the picture of what you will always aspire to regardless of your age or circumstances.

Values illness

The book defines "values illness" as "the state that people fall into when they let chronic pain take them away from living the life they value." The values illness exercise is designed to explore the degree to which this might have happened for you.

ACT for chronic pain is about reducing the difference between how deeply you value something and whether or not you are achieving that in your life. It is about reducing your values illness.

One way to explore values is to think about how you would like to be remembered at your funeral. This type of exercise has been used in all kinds of settings, with all kinds of people to identify what they really care about. The exercise is a way of really uncovering how you want your life to be. The emphasis is not on the actual funeral but about the qualities you value.

Thinking about your funeral might sound a bit weird, maybe a bit upsetting. That is not the intention here. Looking at what you value might be upsetting regardless of the exercise – if your values illness is high. It might be painful to identify what is missing in your life. However, uncovering your values is a key to ACT and it is highly likely you will benefit by uncovering what you really care deeply about. BUT if you feel uncomfortable about doing the funeral exercise please amend the exercise in the following way:

Imagine you are relocating to the United Kingdom. You are going for the long term and leaving your life here in New Zealand. For the exercise, imagine it is your farewell and it is a gathering to honour your leaving. How would you like to be farewelled? What attributes would you like people to acknowledge. Who would you like to have spoken and what would they say about you? Use the domains provided in the exercise and paint the picture of your farewell party.

EXERCISE: EXPLORING VALUES

Refer to page 45 in the book.

What is your valued direction in each dimension of life? This is regardless of your age or the circumstances of your life.

Intimate relationships:

Parenting:

Family relationships:

Social relationships:

Work:

Leisure:

Citizenship:

Personal growth:

Health:

Spirituality:

EXERCISE: BUILDING YOUR VALUES COMPASS

Refer to page 54 of the book to complete this exercise. You may also like to refer to Beth's value statements on page 56.

Below write the statements represent the direction you want to move in during your entire lifetime – without being an end goal.

Intimate relationships:

Parenting:

Family relationships:

Social relationships:

Work:

Leisure:

Citizenship:

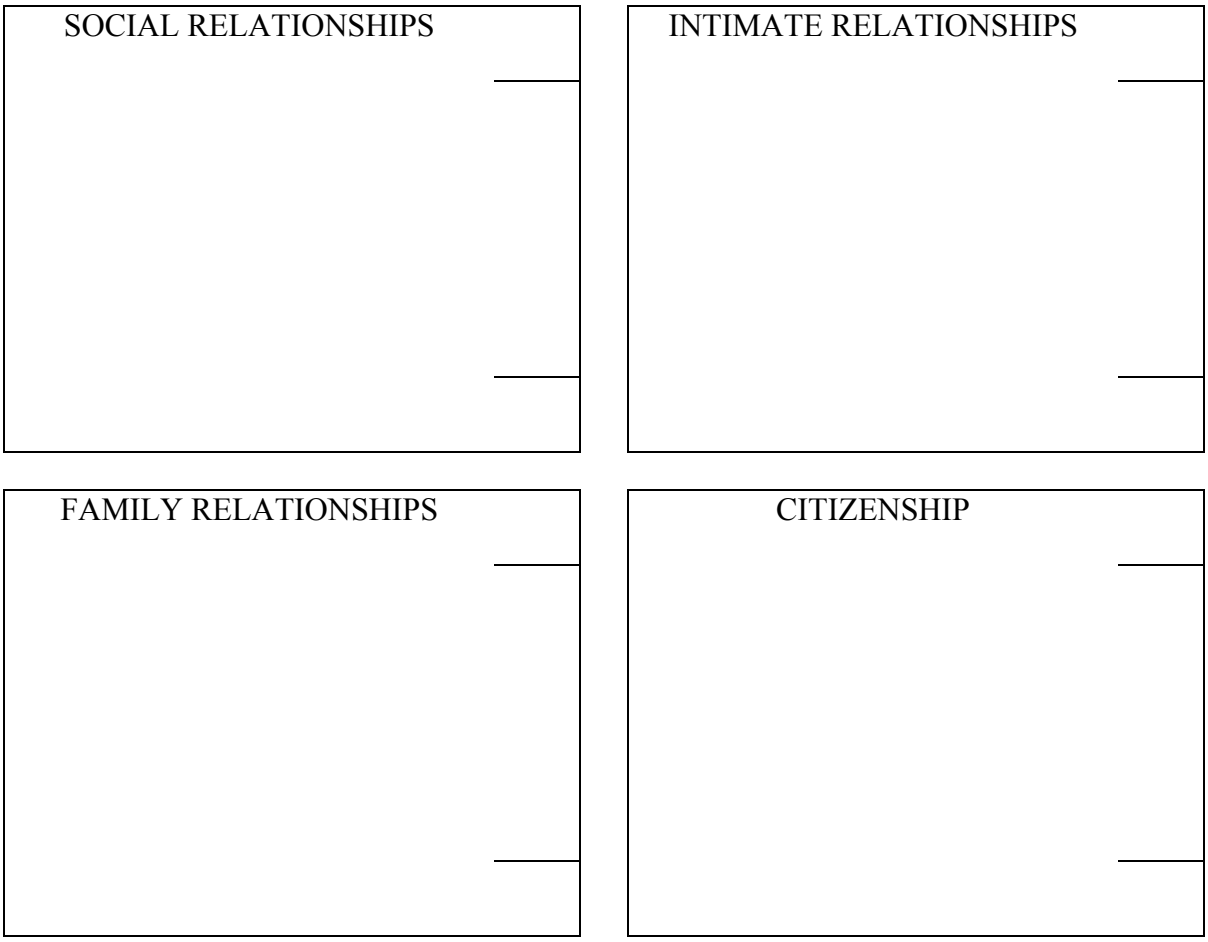
Personal growth:

Health:

Spirituality:

EXERCISE: COMPLETING YOUR VALUES COMPASS & ASSESSING THE SEVERITY OF YOUR VALUES ILLNESS

PARENTING	PERSONAL GROWTH
LEISURE	SPIRITUALITY
HEALTH	WORK


SOCIAL RELATIONSHIPS
INTIMATE RELATIONSHIPS
FAMILY RELATIONSHIPS
CITIZENSHIP

WEEK 2. – What do you value?

Reading: Chapter 3

1. What are values?
2. What is the difference between reasons and choices?
3. How do values differ from goals?
4. Having read the chapter, do you have more of a sense of what your values are?
5. Would you like to be living more in alignment with your values?
6. What would you ideally like your life to be about?
7. How do you feel now you have identified your values?

WEEK 3. You are not your thoughts..

Reading: Chapter 4.

We think our thinking dictates who we are and how we need to act. This works in the outside world such as when we are solving a problem. However, when dealing with our internal world it is not so effective. Our experience of chronic pain is internal because of the way we respond to pain. A different perspective is to stand back and look at your thoughts. That is, to think about your thinking.

Getting distance from your thoughts

The aim of the chapter is to help you learn how to develop some distance from your thoughts and look at them for what they are, not what they say they are. We are so used to identifying as our thoughts that this concept might at first be a bit tricky!

Cognitive defusion

Cognitive defusion is the ACT term for getting distance from your thoughts. Distance doesn't mean avoidance but more, observation. As you work through the book there are more exercises that assist with cognitive defusion. The emphasis of cognitive defusion is to observe rather than try to counter negative thoughts or avoid them.

Big changes can be made in our lives when we change our perspective. The following exercises are designed to help you shift your perspective and to see the impact that your thoughts have.

Words are simply just words. They are vocalisations that we humans make.

EXERCISE: THE CONCEPTUALISED SELF

The authors introduce the concept of the conceptualised self as the mentally defined concept of who you are (see page 85).

Fill in the following statements below with the first thing that comes to mind…

I am a person who:
The best thing about me is:
The worst thing about me is:

These statements are often more that simple descriptive statements. They tend to umbrella other dimensions and can lead to rules about how to live. For example, rules developed around your experience of pain.

EXERCISE: EXPLORING YOUR RULES ABOUT PAIN

This exercise (see page 64) is designed to help you explore the rules you have developed about pain and what those rules lead to. Remember not to think to hard about it!

Rules	What your rules lead to
1. Rules about pain and work	
2. Rules about feeling pain	
3. Rules about pain and intimate relationships	
4. Rules about pain and justice	
5. Rules about pain and exercise	

EXERCISE: PAINFUL THINKING DIARY

Refer to pages 71 and 73.

The focus of this exercise is on your pain related thoughts. Fill it out over the week and complete the remainder of the chapter at the end of the week.

Time	Thought about pain	Intensity	Actions the thought leads to

EXERCISE: ARROGANCE OF WORDS

This exercise is based on the idea that words themselves hold no meaning – they are just words.

In the space below, write down the part of the body that causes you the most pain. Try to make this a short and concise phrase, such as "my back."

Now take a few minutes to write down all of the thoughts and feelings that come up when you speak this phrase aloud or bring it to mind. When you say "my back" (or the body area for you) what comes up for you?

EXERCISE: THIS IS ME THINKING

Refer to page 78 and 79.

After looking at your painful thinking diary, write down the recurring thoughts in the spaces below:

Next, and referring to page 79 of the book, rephrase the thoughts in a more accurate way.

EXERCISE: KICK YOUR BUTS

Refer to page 80.

Over the next few days watch out for your 'but' thoughts and record them here.

_____ but _____

_____ but _____

_____ but _____

_____ but _____

_____ but _____

_____ but _____

_____ but _____

_____ but _____

_____ but _____

_____ but _____

Now re-write your "but" statements as "and" statements below.

_____ and _____

_____ and _____

_____ and _____

_____ and _____

_____ and _____

_____ and _____

_____ and _____

_____ and _____

_____ and _____

_____ and _____

WEEK 3. You are not your thoughts..

Reading: Chapter 4

1. What is the aim of the chapter?
2. How true are the rules you have about pain?
3. How did you find the chocolate icecream exercise?
4. What does intentionally not thinking about something do?
5. What is defusion?
6. How did you find the arrogance of words exercise?
7. How did you find the thought observer exercise?
8. How can it be helpful to get some distance from your thoughts?
9. Did you do the ‘Kick your Buts’ exercise
10. Did doing the exercise change your perspective in any way?

WEEK 4. Mindfulness

Reading: Chapter 5.

If your thoughts are not the answer, mindfulness is. The ACT approach focuses on three ways of looking at yourself. These are the *conceptualised self*, the *self as ongoing awareness* and the *observer self*.

The goal of the chapter is to help you defuse more from your conceptualized self and identify more with your observer self. The exercises are designed to help you do this. Learning how to operate from the observer perspective is central to mindfulness and acceptance.

Conceptualised self

The conceptualised self is the mentally defined concept you have of who you are. It is looking at yourself from your thoughts. It is the aspect you are probably most familiar with and consists of all the pieces you refer to as making up your identity.

Self as ongoing awareness

Self as ongoing awareness is the ongoing record we have of ourselves. It is our sense of our personal history. It is not good or bad, but can create problems if people start to judge aspects of their history.

The observer self

This is the self that has observed all the experiences over your life time. It is the stable unchanging part of you that has been present always. It is the connection between the person you are today, the person you were last summer, the person you were when you were a teenager and the person you were as a young child.

The chessboard metaphor

Sometimes people with chronic pain end up in a battle between living a valued life and protecting themselves from pain. The chessboard metaphor is used to illustrate this scenario. What if you are all the pieces on the chessboard? A mindful perspective means your life is about the whole chessboard.

EXERCISE: TYPES OF SELF

Refer to page 85.
Complete the following sentence with every single possibility that comes to mind

I am a person who…

The next question is helpful in identifying your conceptualised self. Read the following statement and then take notes on everything your mind produces in relation to this statement:

I am a perfect and competent individual and have everything I need in order to realize the dreams I want for my life...

Now try the same exercise with this statement:

I am a totally imperfect and incompetent individual and have nothing I need to realize my dreams…

EXERCISE: LOCATING THE OBSERVER SELF

Refer to page 89.

Think of a situation that happened last summer that meant something special to you. Write it down here:

Think of something that happened when you were a teenager that was very special for you. Describe that situation here:

Finally, think of something that happened when you were very young that was special to you and that you remember well. Describe it here:

Now answer this question: where were *you* in each of these experiences?

EXERCISE: THE BATTLE BETWEEN LIVING A VALUED LIFE AND PROTECTING YOURSELF FROM PAIN

This exercise builds on the chess metaphor where the pain side (black) struggles against the valued life side in a battle. Refer to page 94.

Valued action:

Pain protection:

Result

Where are you in all this?

Here is a space for you to do some mindful journaling. You may wish to do more in a journal or on your own paper. Remember the exercise is about watching your verbal content. There is no right way to write and you can write about anything.

WEEK 4. Mindfulness

Reading: Chapter 5.

1. What is the goal of the chapter?
2. What is the conceptualised self?
3. What is the observer self?
4. What is the self as ongoing awareness?
5. Can you relate to the chess board metaphor (make sure you have read to the end of page 93 to answer this).
6. If you can relate to the metaphor, what team has been winning your chess game?
7. Did doing the ‘battle between living a valued life and protecting your self from pain’ exercise help you to see how your mind sometimes fights against itself?
8. How did you find the being in the moment exercise?
9. Did you do any mindful journaling?
10. How was this experience for you?
11. How did you find the sitting mindfulness practice?
12. How is mindfulness helpful with pain?

WEEK 5. Are you willing?

Reading: Chapter 6 and up to page 136 of Chapter 7

The essence of chapter 6 is that while pain may remain, it is your perspective that changes. Mindfulness allows you to see your pain in the larger context of your total being. Hopefully you are starting to get a sense of looking at your thoughts feelings and bodily sensations rather than *from* them.

What is acceptance?

- In ACT terms it is being the chessboard
- It is allowing yourself to willingly engage with your pain.

The ACT approach teaches acceptance so you can get on with living your day to day life. It is not about a sudden magical insight but rather an approach to getting on with a valued life.

The pain dial exercise is designed to help you work with your pain. One dial reflects the pain you feel and the second dial reflects your ability to accept pain. When you turn the acceptance dial up, you are likely to find you are more able to put your time and energy into the way you want to live.

Acceptance isn't always easy but with time and practice you can learn to embrace your pain even in the worst situations. Being in your observer seat will help and this is why so far you have learnt the defusion and mindfulness exercises. Acceptance is the next step.

Acceptance is a conscious decision

That's why the authors of *Living Beyond Your Pain* ask the reader, " Are you ready to take a big step and willingly embrace your pain, looking at if from the perspective of your observer self, seeing it as it is and not as it says it is, in order to live the valued life you've always wanted to live?"

What are the pitfalls of acceptance?

1. Experiential avoidance, e.g., when mindfulness reduces pain so you use it to stop pain.
2. You can't try to accept – you choose to or not.

What is Committed Action?

It is deciding what you want to do and then doing it. You are steering your life bus and your values compass give you direction for the choices you make. Committed action means doing it. However, people often get stuck here as their minds starts providing many reasons why not to act (for example, "you will end up in pain").

The book suggests that when you feel something holding you back from taking your action, take a step back (as observer) and see the obstacle for what it is. See if you can breath and embrace the obstacle. Then see if you can take your valued action bringing along the pain or fear that you may have.

Hopefully when you take committed action you will notice feelings of vitality and energy.

EXERCISE: JO THE BUM

Refer pages 110-112.

Which alternative would you choose?
(Circle the number)

1. Teach Joe to behave properly first, then have parties.

2. Numb yourself from reacting to Joe by using drugs or alcohol.

3. Avoid Joe altogether by not having or attending any more parties.

4. Suppress you reactions to Joe by keeping yourself busy.

5. Accept Joe completely, just as he is – with his smelly clothes and his bad attitude – and enjoy your party.

EXERCISE: THE PAIN MONSTER

Refer to page 118.

If you could put your pain outside your body, what shape would it have?

If you could put you pain outside your body, how big would it be

---

What colour would your pain be if it were outside your body?

What texture would your pain have? E.g. rough, smooth, silky or like granite?

If your pain had a voice, what would it sound like?

How would your pain smell if it were outside your body?

EXERCISE: YOUR STRESSFUL OR DIFFICULT SITUATIONS

In the space below, make your own list of situations that are painful, stressful or just difficult for you. Refer to Beth's stressful or difficult situations on page 123.

Situations that I expect will be physically painful:

-
-
-
-
-
-

Situations that are psychologically distressing:

-
-
-
-
-
-

Notes on your painful situations. Use the space below to record your experience so you can continue to reflect on it and learn new ways to refine your acceptance techniques over time. You will need more paper to do this for all of the situations you identified above.

Difficult situation I engaged in:

What my mind and body were yelling at me (take notes on both your physical pain and what your mind wanted you to do about it):

My acceptance approach (what techniques you used and how they worked):

How I might refine my technique in the future (list any ways you think you might be more successful in practicing acceptance):

Chapter 7.

Refer to page 130 of the book. Look again at your Values Compass (from week 2).

Has anything changed since you have been working on the book?

Y / N

Are there any changes you need to make to your Values Compass?

Y / N

If so, you can make them below:

Intimate relationships:

Parenting:

Family relationships:

Social relationships

Work

Leisure

Citizenship

Personal growth

Health

Spirituality

What is the one value you choose to work on for the remainder of the chapter?

And what is the action that you have decided on?

WEEK 5. Are you willing?

Reading: Chapter 6 and up to page 136 of Chapter 7

1. If your pain doesn't change, what does change?

2. What is acceptance?

3. What are your thoughts about the alternative you chose for the Joe the Bum exercise?

4. What are the two dials described on page 113?

5. What are the two pitfalls of acceptance?

6. Are you ready to take a big step and willingly embrace your pain, looking at it from the perspective of your observer self, seeing it as it is and not as it says it is, in order to live the valued life you've always wanted to live?

7. How did you find the turning up the acceptance dial exercise?

8. How did you find the getting bigger than your pain exercise?

9. Did you go out and engage in some of your painful situations?

10. Refer to page 130 of the book. Did you need to make changes to your Values Compass?

11. Did you take that action you decided on (page 133)?

12. What was the outcome of your action?

WEEK 6. Living in the bull's-eye

Reading: This week's work starts on page 136 (half way through Chapter 7)

Vital versus non-vital actions

Vital actions are activities that support living your values. This type of activity makes you feel alive and energised. Non-vital actions are those that do not make your feel alive and energised, for example, activities done for pain relief. The feelings of energy and vitality are what will help you keep you focused on your commitments.

Living in the bulls-eye

Living a valued life is a process. Your values compass steers the direction. The main goal of chapter 8 is to help you choose a life you value. The bulls-eye exercise is designed to help you commit to valued actions, assess their vitality, change course when you need to, and then take more committed actions.

As you change your actions from avoiding pain and toward living life based on your values, you will change and others will notice this. The 'building your support team' exercise is designed to help you with this. Telling people what is happening for you and asking them for support can be useful.

What is holding you back?

There will be barriers – remember to apply the following process

- Detach/defuse from your thoughts and see them for what they are not what they say they are
- Take the observer perspective
- Open up and embrace the barrier
- Then reflect on your values and commit to taking steps in the direction of your values, bringing your pain, mental chatter and other barriers along with you

Chapter 8 helps you design an action plan you can take when you face barriers on your path to a valued life, or when you stray from the ACT mind-set and skills.

Obstacles in a river

Floating down the river is about experiencing rather than trying to control your life. It is about having the best experience you can. You might need to ignore your mental chatter and reflexes to control, but the more you practice the easier it will be.

What are the three main concepts of Acceptance and Commitment Therapy?

- Accept
- Choose
- Take action

EXERCISE: VITAL AND NON-VITAL ACTIONS

Refer to page 136.

Action	Nonvital	Vital

How did the types of action feel?

A vital activity felt :

A non-vital activity felt :

EXERCISE: THE BULL'S EYE

Refer to page 139.

Which one of the ten life domains did you choose to focus on?

How could you most completely express you values in this area?

What is one action you could take that would move you one step in your valued direction?

Where did you hit (e.g. bull's-eye, very close, close, in the vicinity or far from)?

If your committed action didn't hit the bull's-eye, ask yourself these questions:

What was it about this experience that resulted in my not feeling completely vitalised?

What could I do that might make me feel I've gotten closer to my valued path?

What is a specific, concrete action I can take in order to achieve this?

EXERCISE: BUILDING YOUR SUPPORT TEAM

Refer to page 144.

Who do you think will be affected by the changes you're making in your life right now?

How do you think they'll react?

How could you commit to helping these people understand what you're doing?

EXERCISE: IDENTIFYING YOUR OBSTACLES

Refer to pages 150 & 151.

Think about places where you've encountered problems in the past. Where are some of the obstacles you expect to encounter on your path to a valued life?

Obstacle 1:

Obstacle 2:

Obstacle 3:

Obstacle 4:

Obstacle 5:

Obstacle 6:

Obstacle 7:

Obstacle 8:

Now on the second line for each obstacle, note your old coping strategies for each obstacle (e.g. how you coped with each obstacle in the past).

For help refer to Beth's old coping strategies, page 153

EXERCISE: DEVELOPING A COMMITTED ACTION PLAN FOR OBSTACLES

Refer to page 154 and in the spaces below, develop an action plan for each obstacle you listed above. Think of ways that you can let go of control, flow with the river, defuse from your thoughts, be more mindful, accept the obstacle s in your path and continue to move in your valued directions.

Acceptance and committed action plan for obstacle 1:

Acceptance and committed action plan for obstacle 2:

Acceptance and committed action plan for obstacle 3:

Acceptance and committed action plan for obstacle 4:

Acceptance and committed action plan for obstacle 5:

Acceptance and committed action plan for obstacle 6:

Acceptance and committed action plan for obstacle 7:

Acceptance and committed action plan for obstacle 8:

EXERCISE: DEVELOPING ACT STRATEGIES FOR DEALING WITH UNRULY PASSENGERS ON YOUR LIFE BUS

Refer to page 158 for full instructions for the exercise and to page 162 – Beth's ACT strategies.

Write the value you would like to move forward with below:

Next you need a route to follow. Choose a few committed action steps; these will be the stops on the bus route you are designing. Think in terms of actions that will take you in the direction of the value you stated above.

Committed action 1:

Committed action 2:

Committed action 3:

Committed action 4:

What does the monster scream at you?

Monster 1 yells:

Did you think about some ways that you could accept what this monster is yelling at you and still engage in the action you are committed to?

Y / N

Write the strategy below:

Acceptance and commitment strategy for monster 1:

Now imagine the same thing happens at each stop on the route you've plotted. Every time you pull over to take a valued action, another monster gets on and starts yelling at you. How do you handle each of these situations?

Monster 2 yells:

Acceptance and commitment strategy for monster 2:

Monster 3 yells:

Acceptance and commitment strategy for monster 3:

Monster 4 yells:

Acceptance and commitment strategy for monster 4:

WEEK 6. Living in the bull's-eye

Reading: This weeks work starts on page 136 (half way through Chapter 7) and includes Chapter 8

1. What is a vital action?
2. What is a non-vital action?
3. Was identifying these types of activities useful?
4. Did you do the Bull's-Eye exercise?
5. How did you find the exercise?
6. Why might it be beneficial to 'float down the river'?
7. What are the three main concepts of Acceptance and Commitment Therapy?
8. What did you like most about the self-help book?
9. What did you like least about the self-help book?

Book Reference:

Dahl, J. & Lundgren, T. (2006). *Living beyond your pain: Using acceptance and commitment therapy to ease chronic pain*. Oakland, CA: New Harbinger Publications, Inc.

Appendix Four

Contacts for psychological assistance outside the study

There are no psychological risks envisaged with participation this study. However, if you find anything upsetting and wish to seek external support, here are some options available to you:

- Lifeline Waikato
  Ph: 0800LIFELINE

- The Psychology Centre
  2 Von Tempsky St
  Hamilton East
  Ph: 834 1520

- Salvation Army – The Nest
  Individual, group and family counselling
  Ph 07 843 4509

- Linkage
  129 Tristram St
  Hamilton
  Ph 839 2828
  (For referrals to other organisations)